ENGINEERING NEWS-RECORD

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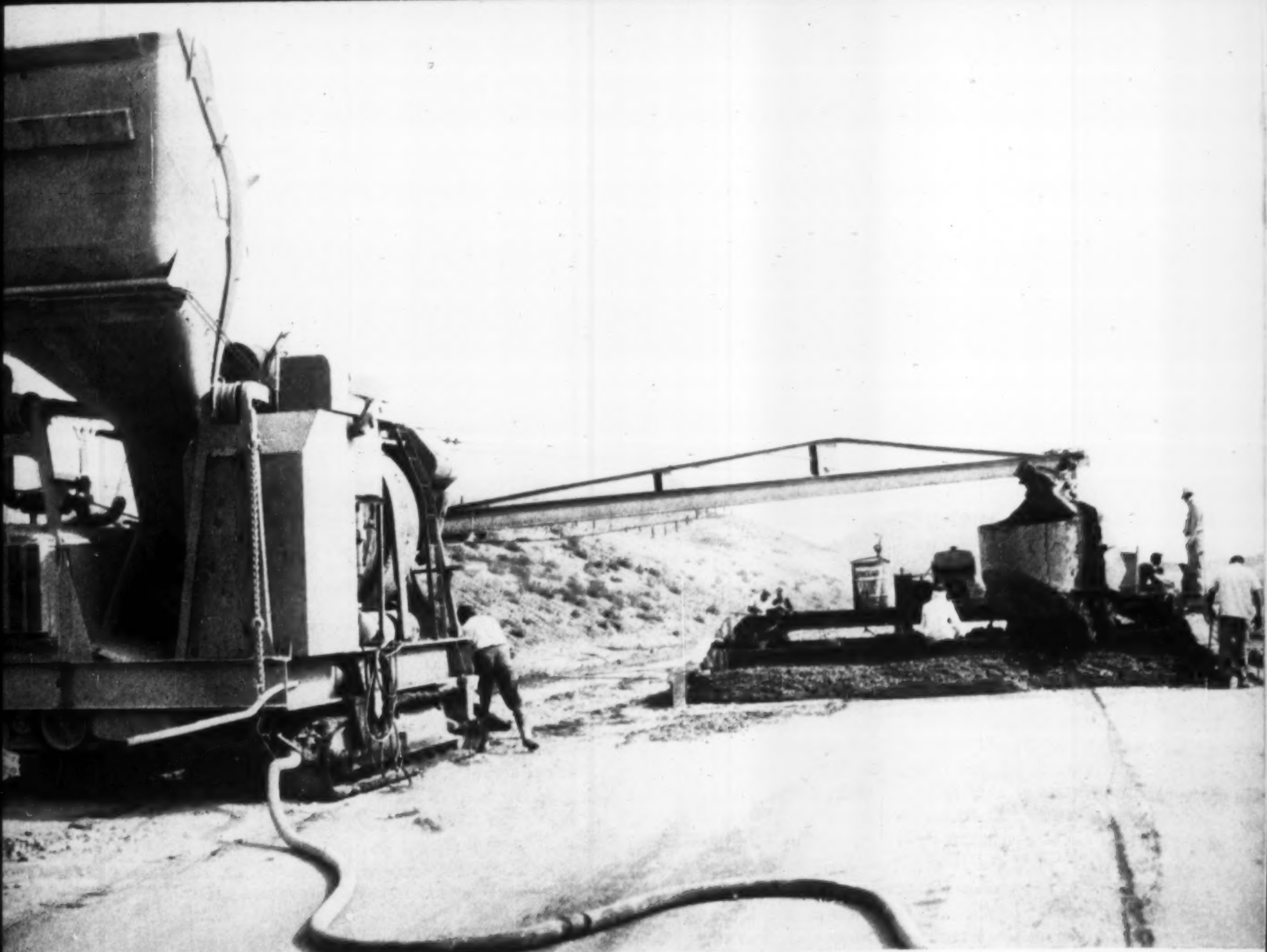
- Wellpoints bail out a pipeline job p. 40 [illegible]



Road paving without fixed forms p. 53

A McGRAW-HILL PUBLICATION

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Built-in
Protection
against
Corrosion
BYERS
IRON

Here's why Wrought Iron Pipe serves longer at lower cost-per-year

Wrought iron pipe's longer life comes from its unique composition and structure. It is a two-component metal . . . high purity iron and glasslike iron silicate. The iron silicate is distributed throughout the iron in the form of threads or fibers. There are more than 250,000 fibers per sectional square inch.

These same fibers, illustrated in the magnified section above, give wrought iron its built-in protection against corrosion. When corrosion attacks, the network of these defensive fibers quickly arrests pitting and rapid penetration. As a result, corrosion is forced to spread out over the entire surface instead of penetrating the pipe wall, as happens in other materials. This effective safeguard against corrosion means that wrought iron pipe lasts longer at lower cost-per-year.

Service records in a variety of installations support this longer-life reputation of wrought iron pipe. Some of the applications where wrought iron is serving and saving are: heating system piping; air conditioning and refrigeration piping; water supply piping; sanitary system piping; sewage plant services; electrical conduit.

More of this story, and why you can use wrought iron pipe with confidence, is told in our booklet, *The ABC's of Wrought Iron*. Write for your copy today.

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"Excellent," says HAROLD S. BULLARD, Equip. Supt. Amis Construction Co.

"We find these engines have exceptionally long life and give excellent performance with a minimum amount of attention."

MURPHY DIESEL
MURPHY DIESEL

● When we are asked about Murphy Diesels for tough rock service, we prefer to let an owner answer for us. Harold S. Bullard, Equipment Superintendent, Amis Construction Co., Oklahoma City, is well-qualified to answer, too.

Amis Construction Co. bought their first Murphy Diesel years ago as original equipment on a shovel. Mr. Bullard says of this engine, *"We were very well pleased with the economy of operation and rugged dependability of this original Murphy engine and since that time have purchased other Murphys for heavy duty work in our vast operations. We now have them in use as power for rock crushers, generators, shovels and cranes."*

Here is one user's opinion. And the repeat orders remove any doubt as to his sincerity. But don't stop here. Ask other Murphy Diesel owners for their opinions, they are our best salesmen. Then ask your Murphy Diesel Dealer to show you how Murphy Diesel Power will fit into your operation.

Heavy duty power
for construction

Murphy Diesel Engines and Power Units are available in sizes from 96 to 264 H.P. Engine speeds are 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 64 to 165 K.W.

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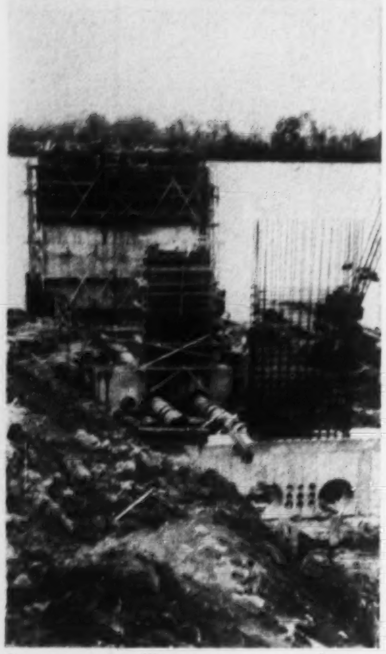
Symons **FIELD REPORT...**



Symons Forms used on Ohio River Intake Job...

60,000 square feet of concrete forming went into this job constructed for the city of Henderson, Kentucky. The wall started at elevation 317 (sea level elevation) or 21 feet below the river pool stage and when completed was topped at 385 or 47 feet above the water.

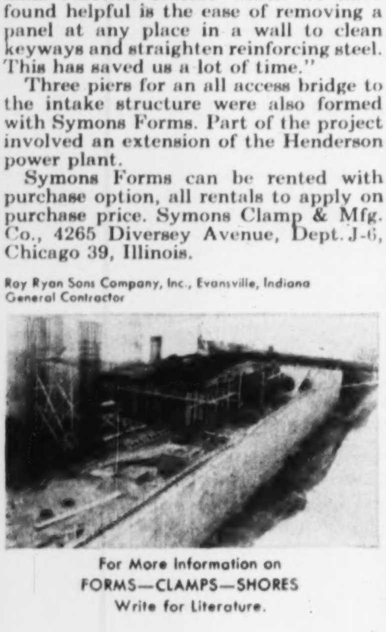
15,000 square feet of Standard Symons Wood Frame Forms were used, in sizes 2′ x 4′, 2′ x 6′ and 2′ x 8′.

George Ryan, Vice President said, "Even in the eight foot lengths our Symons Forms are easily carried by one man. Another feature which we have found helpful is the ease of removing a panel at any place in a wall to clean keyways and straighten reinforcing steel. This has saved us a lot of time."

Three piers for an all access bridge to the intake structure were also formed with Symons Forms. Part of the project involved an extension of the Henderson power plant.

Symons Forms can be rented with purchase option, all rentals to apply on purchase price. Symons Clamp & Mfg. Co., 4265 Diversey Avenue, Dept. J-6, Chicago 39, Illinois.

Roy Ryan Sons Company, Inc., Evansville, Indiana
General Contractor



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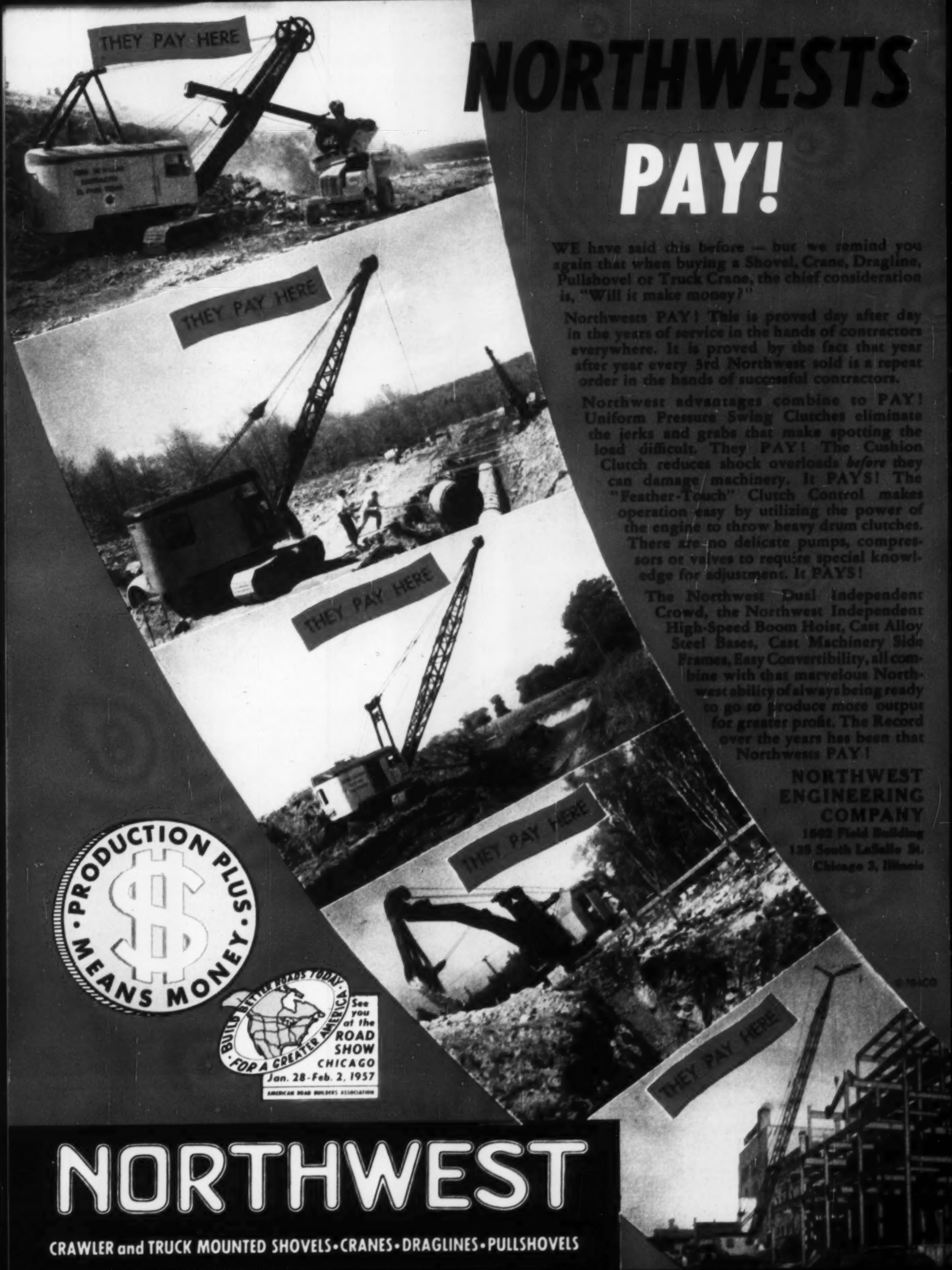

WE have said this before — but we remind you again that when buying a Shovel, Crane, Dragline, Pullshovel or Truck Crane, the chief consideration is, "Will it make money?"

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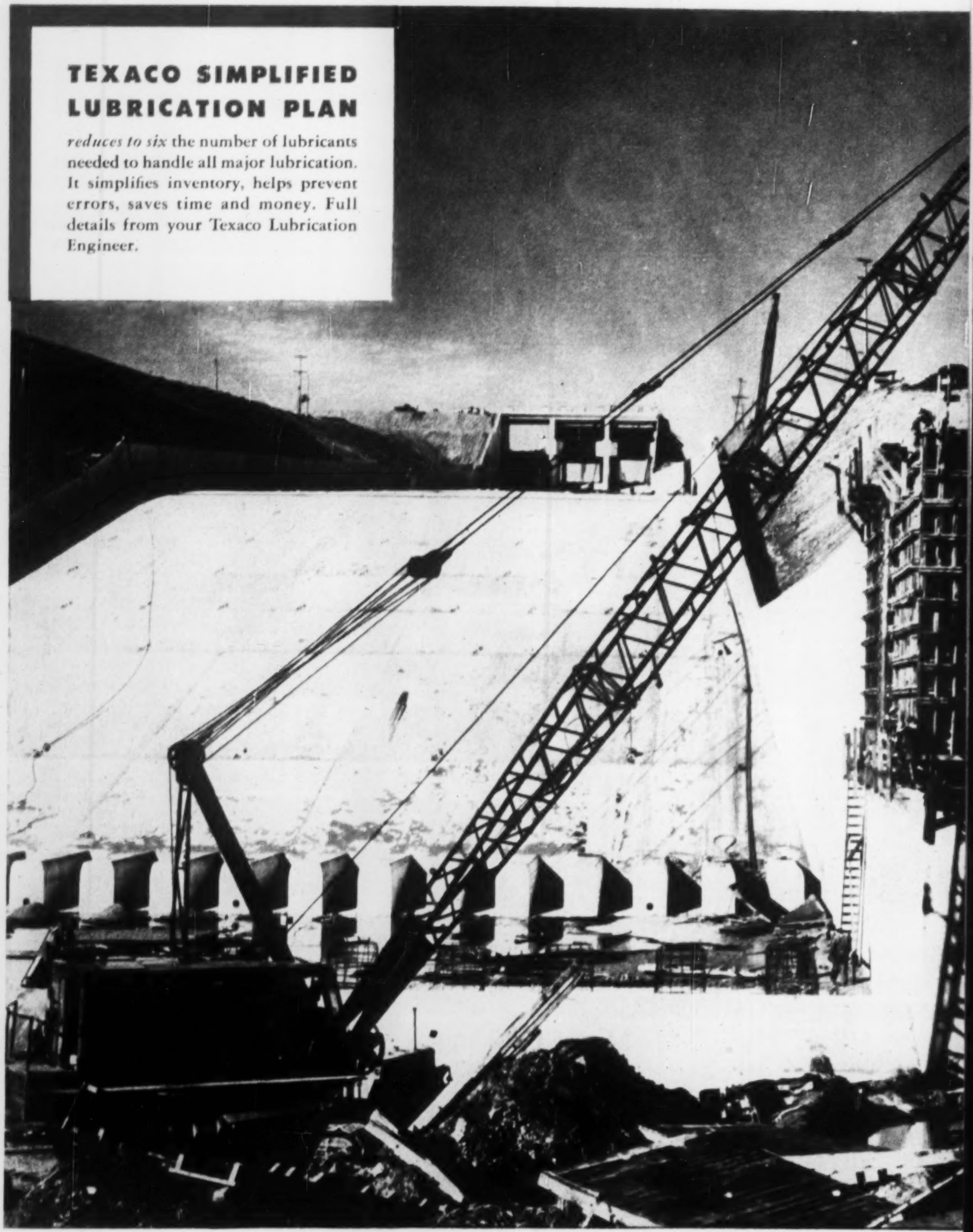

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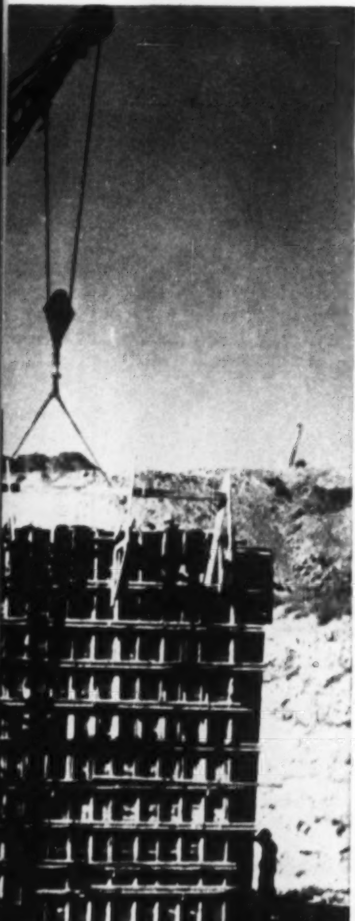


Photo courtesy Engineering News-Record

"Work ahead of schedule...thanks to TEXACO"

Contractors on this job (name on request) lubricate their equipment exclusively with Texaco. They report:

> **"Thanks to Texaco, we get the high equipment efficiency necessary to keep the work ahead of schedule. Our diesels, for example, deliver top-notch performance with *Texaco Ursa Oil Heavy Duty*. In addition, we've improved preventive maintenance procedures and cut costs by following the Simplified Lubrication Plan recommended to us by a Texaco Lubrication Engineer."**

Texaco Ursa Oil Heavy Duty is one of the famous *Texaco Ursa Oils*—all designed to make your diesel and heavy duty gasoline engines deliver *more power* with *less fuel* over *longer periods* between overhauls.

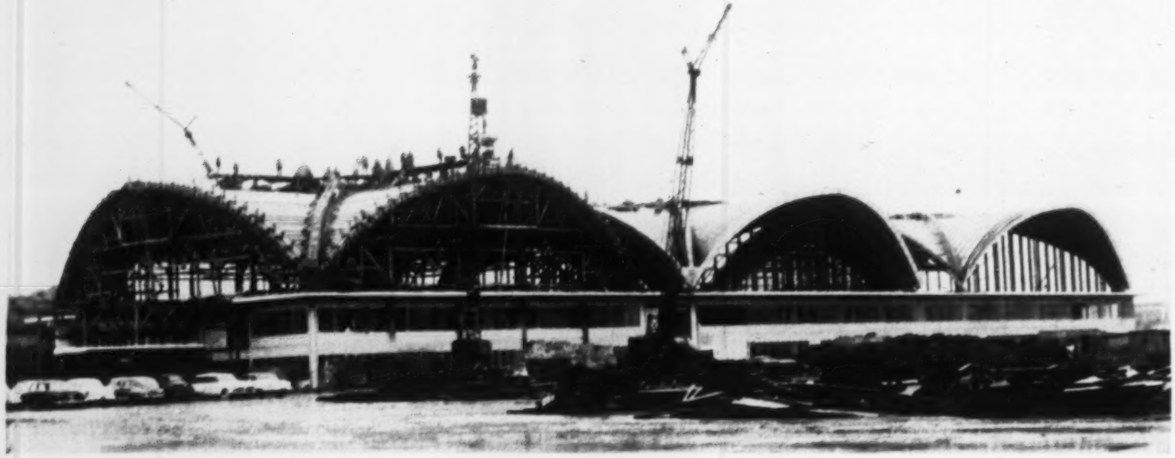
For your air compressors and hydraulic equipment, use *Texaco Regal Oil R&O*. It keeps compressors clean and efficient; prevents rust, sludge and foam in hydraulic systems.

For your drills, use *Texaco Rock Drill Lubricant EP*. It protects against wear and prevents rust whether drills are running or idle.

Let a Texaco Lubrication Engineer help you simplify your lubrication and get greater efficiency from your equipment. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT



HELLMUTH, YAMANSKI & LEINWEBER, St. Louis, architects; Wm. C. E. Baker, St. Louis, engineer. Portable false work fabricated by Timber Structures Inc., Portland, Ore., to design of Roberts & Schaefer Co., Chicago, Ill. L&R Construction Co., Inc., St. Louis, Mo., contractor.

It was pouring when they roofed St. Louis Airport terminal

THREE SECTIONS of intersecting thin-shell concrete vaults, supported only at their four corners and cast as a unit in one continuous pour, form the unconventional roof of the otherwise conventionally constructed Lambert-St. Louis Municipal Airport Terminal.

Each section covers a 14,400 sq. ft. area. The bays between the arches bring the total roof area to 420′ x 120′. The shells are 32′ high at crown and of 4½″ uniform thickness. Their arch ribs are 18″ wide and taper from 10′ depth at corners to 3′ 9″ at top.

Each roof section, including ribs, required 400 cu. yds. of concrete. To cast them in one pour called for careful preparation. Two cranes with buckets and a hoisting tower delivering to concrete buggies placed the first section. Adding two more cranes (one at each corner) cut placement time in half on the other two sections.

An uninterrupted flow of specification concrete was essential to the operation. It was insured by on-schedule deliveries in truck mixers having proper design, capacity, mixing speed and accuracy of water control as certified by Bureau Rating Plate.

BOLTS THROUGH CONCRETE BLOCKS placed between rib forms and deck form tie forms together. Shell and ribs were poured at same time. C&E Staff Photos.

FALSEWORK SYSTEM was designed in 11 separate sections to roll on rails from one pour to next.

4 1/2 CUBIC YARD MIXER
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5 CUBIC YARDS
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You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

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Polyethylene film for bond-breaking

speeds tilt-up construction

Tilt-up slabs are virtually seamless when made with polyethylene membranes. Curing is greatly aided and work speeded by this lightweight film. Data courtesy of **Visking Corp.,** Terre Haute, Indiana.

Faster fabrication, more perfect finish are important to the success of tilt-up slab construction. New techniques involving the use of bond-breaking film of BAKELITE Brand Polyethylene plastic offer savings in time and unusually smooth surfaces.

Here's the method. The base slab is flooded with water and the polyethylene film is spread. Push brooms smooth out any wrinkles. Reinforcing steel and forms are positioned, no special care being required to protect the tough film. After pouring and finishing the concrete, the slab is covered with a second film. This method eliminates need for curing compound or further flooding. Completed slab is easily parted from base, set aside until needed.

Prefabricated roof sections, walls or other shapes greatly benefit from the strong, even cure possible with Polyethylene film used as a moisture barrier and a bond-breaker. Its lightweight, wide range of widths make it easy to work with. You can find out more about its applications in construction projects by contacting your supplier or writing Dept. TG-49.

It pays to specify film made of...

BAKELITE
BRAND
Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.
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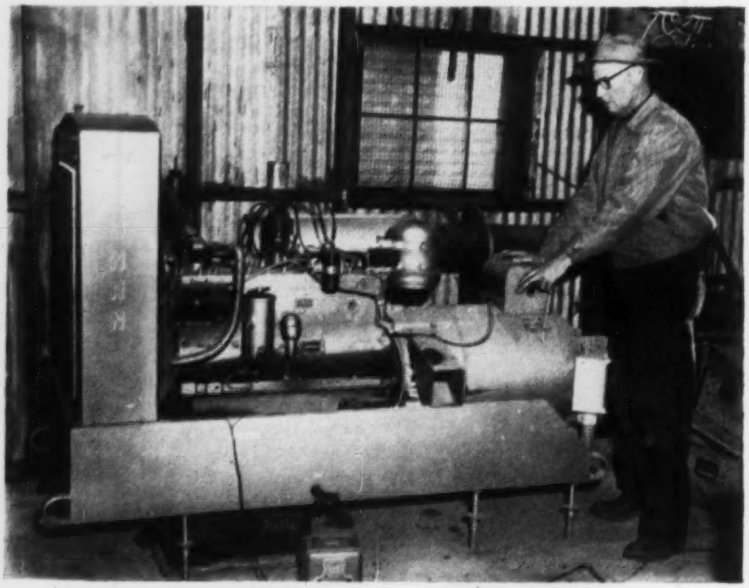
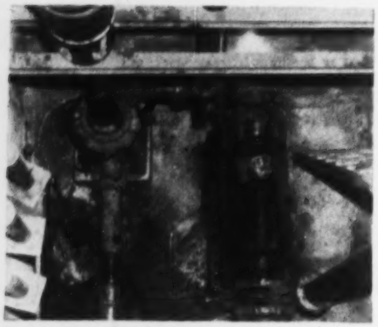
How the city of Gridley (Calif.)

GIVES SEWAGE A LIFT



...with ONAN

EMERGENCY ELECTRIC POWER



These two electrically-driven pumps lift sewage 25 feet to the out-fall line. During a power outage, electricity from the Onan Standby Plant keeps them pumping.

500 TO 50,000 WATTS

Air-cooled, gasoline-powered: 500 to 10,000 watts.

Water-cooled, gasoline-powered: 10,000 to 50,000 watts.

Air-cooled, Diesel-powered: 3,000 and 5,000 watts.

At one point in the Gridley sewage system, sewage has to be pumped up 25 feet to the out-fall line. Two electrically-driven centrifugal pumps do the job. But any interruption of utility power to these pumps would cause sewage to back up and could put the system out of operation.

To make sure this doesn't happen, Gridley has installed an Onan 35,000-watt gasoline-engine-driven electric plant in the lift station. When utility power is interrupted, the Onan plant takes over, keeps the pumps going.

Gridley has another 35KW Onan unit mounted on a heavy-duty trailer which can be quickly towed to any spot needing power. A big fire recently blacked-out a big part of Gridley and for 3 hours the Onan Electric Plant kept that part of town supplied with light and power.

Built in many models and sizes, Onan Electric Plants serve as emergency units for fire and police departments, civil defense, and other municipal services. Lightweight Onan portable plants are used by fire, street, and park departments for electricity where utility power is not available.

Write for folder and specifications

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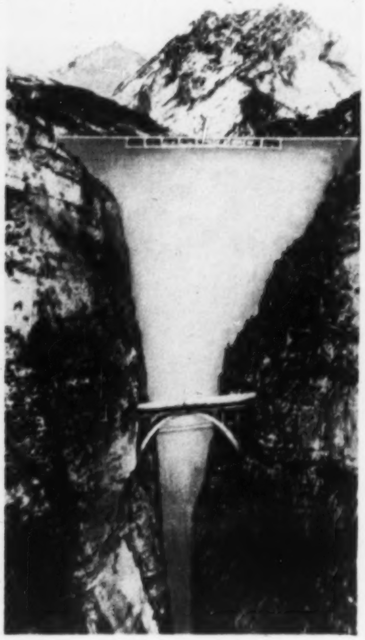
Reader Comment



Italy's Record Arch Dam

Sir—I have read your interesting article, ENR May 24, p. 34, entitled "Swiss Take Over High Dam Leadership", and I take the liberty to draw your attention to another dam that, at present, is being built in Italy. It will be the highest arch dam in the world because it outvies the Mauvoisin dam by 95 ft.

It is the Vajont Dam that S.A.D.E. (Society Adriatica di Elettricita of Venice) has awarded to the Dr. Ing. G. Torno Company of Milan. The dam is situated at the Vajont river, stream tributary to Piave, Province of Udine. It is a dome-shaped dam in concrete structure, with a base width of 67 ft and a concrete volume of 500,000 cu yd.

Construction started in June 1956 and will be finished in 1959. Enclosed I send you a picture of the dam.

Dr. Ing. Giuseppe Torno
Milan, Italy

[Editor's Note—ENR reported that another record was indicated in covering ASCE's symposium on arch dams held in Knoxville in the spring (ENR June 14, p. 23). The spectacular Vajont Dam (pictured above) was mentioned there. Its major dimensions compare with Mauvoisin's 922-ft height, 181-ft base width and 2,800,000-cu-yd volume. The considerable

Built to "take it," this low-cost Barber-Greene Ditcher cuts the cost of digging narrow trenches . . . proves that hand digging is no longer economical, even on the smallest jobs.

Digging from house to main at less cost than ever before

When laying pipe for service lines and other installations, utilities and contractors have had to contend with the high cost of digging and backfilling the required trenches.

The new Barber-Greene 702 Ditcher has solved this problem. Despite its small size, the 702 is the newest machine in the most rugged line of ditchers made.

Prior to this new development, available machines either dug too wide for practical and economical operation, or did not have the stamina and digability required for coping with unfavorable conditions.

Utilities, contractors and railroads are now gaining the advantages of underground lines and services in virtually every area of the country.

Applications, to date, include electric power and telephone lines and house services, railroad signal systems, traffic control systems, outdoor theater wiring, installations of small gas and water lines and services, lawn sprinkling systems and others.

Digs to 40" deep, 5" wide. The 702 can be easily towed or carried on a light truck. Simple-to-operate dual controls permit operation from seat or from side of machine for full view of trench.

Write for literature on this important, new, low-cost ditcher

See you at the ROAD SHOW

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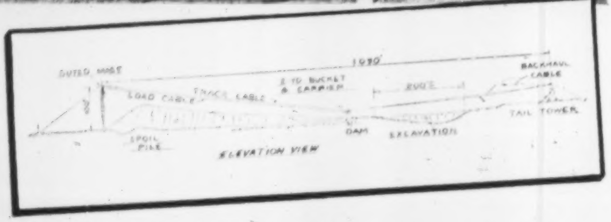
DIGGING and CLEARING



Slackline Cableway—A 2-yd. bucket is used to maintain a clear channel to an irrigation project. The cableway digs the hard packed silt and conveys it to a spoil pile on the downstream side of the dam. Method permits removal of silt without wasting water.—*Sauerman News No. 146.*

STORAGE and RECLAMATION

DragScraper—Coal storage at this large eastern plant is provided by two 7-cu. yd. DragScrapers. New machine (left) parallels one in service for over 25 years. Buckets are shifted by remote control from stations above head-end monorail. Traveling tail towers provide lateral movement of buckets on coal pile.
—*Sauerman News No. 148.*

UNDERWATER TRENCHING

DragScraper and Crane—Here's how a DragScraper used with a carrier and track cable can extend the reach of any crane. This arrangement was highly successful in digging a trench for underwater pipe and backfilling after pipe was laid.
—*Crane-DragScraper information is available in Field Report No. 228.*

Find out what the Sauerman Method can do for you

Give us details on your operation. Our engineers will give prompt recommendations and work with you to provide the best method for your requirements. Ask for Catalogs C (Slackline Cableways) and D (Coal Storage by DragScraper).

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difference in volumes of the two structures is due to the difference in their lengths: Vajont's crest length is 610 ft; Mauvoisin's, 1,760 ft.]

Soviet Builders Exploited

Sir—Your article "What U. S. Homebuilders Saw in Russia" (ENR Aug. 9, p. 21) gives an almost complete picture of present-day structural engineering in Soviet Russia. Nevertheless it is necessary to emphasize that the strategy of attacking certain problems depends on the will of the Communist party. Like the people, the engineers and builders are merely tools in the hands of the party.

In Russia there has never been a sufficient number of educated people with practical or realistic ability. Lack of skilled workers has been and still is a catastrophic condition. The Russians try to fill this gap with workers from occupied central European countries. Thus, their policy does not differ from that of the ancient Egyptians when erecting the pyramids.

Maximil Grietens, C. E.
Cheyenne, Wyoming

For Engineering Aids

Sir—There has been much discussion in the press on the subject of the shortages of engineers, but—

Why not have helpers to relieve engineers of time-consuming extra duties?

I first read of the idea recently in connection with the nurse and school teacher shortages, and it struck me as furnishing a smart, practical way to lick the growing shortage of engineers which, together with our growing demand for highly trained technical personnel, is one of our major, most immediate national problems.

In brief the idea is this: Hire competent engineers' aids, or nonprofessional assistants who know how to assist engineers and preferably having some desire to become engineers, to assist the regular licensed engineers by relieving them of time-consuming, nonprofessional duties.

(*Continued on page 14*)

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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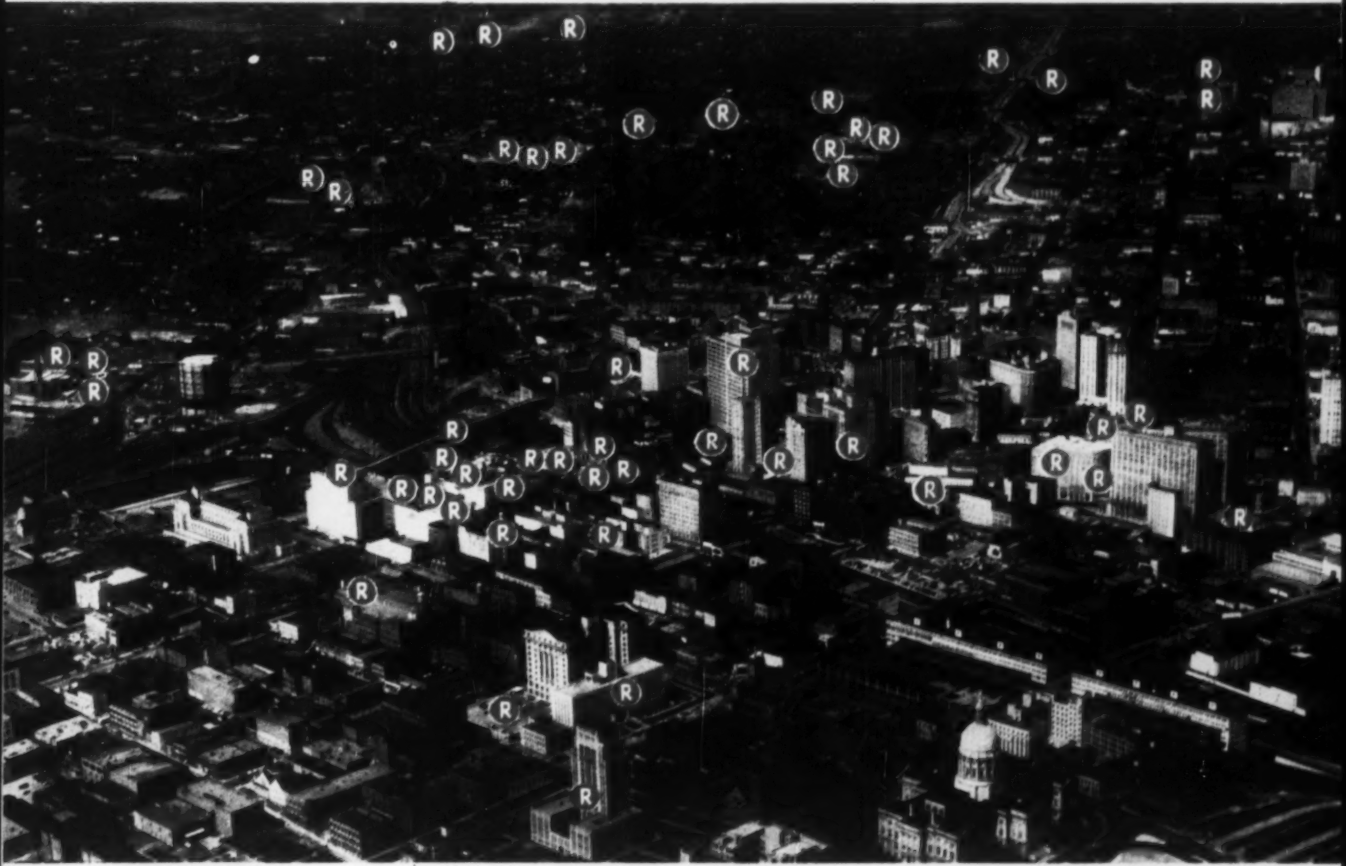
THE RED DOTS INDICATE STRUCTURES BUILT ON RAYMOND FOUNDATIONS



RAYMOND *AT HOME AND ABROAD*

AROUND THE WORLD FOUNDED 1897

IN THIS COUNTRY . . . FOUNDATIONS . . . MARINE STRUCTURES . . HEAVY CONSTRUCTION . . . SOIL INVESTIGATIONS

OUTSIDE THE UNITED STATES . . . COMPLETE SERVICE FOR ALL TYPES OF CONSTRUCTION.

RAYMOND

CONCRETE PILE CO.
140 Cedar Street, New York 6, N. Y.

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IT'S HERE!

THE BIG ADVANCE IN 2-WAY RADIO

Bendix

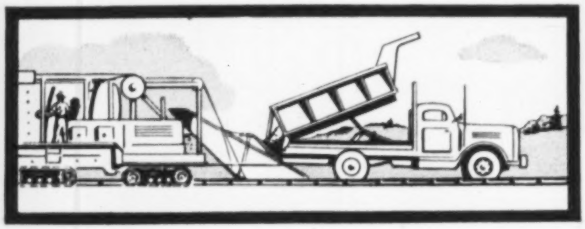
DYNA-COM

. . . and here are 10 ways it helps CONTRACTORS and BUILDERS save money

Coordinates men and equipment ★ Speeds repairs Expedites orders faster ★ Cuts no-load miles ★ Improves operator's morale ★ Controls field operations Cuts down-time ★ Enables equipment to be shifted quickly from one site to another ★ Helps meet emergencies in minimum time ★ Eliminates vehicle messenger miles

Good communication is vital in keeping projects running smoothly and in meeting construction deadlines. And that's just what Bendix*Dyna-Com Radio gives you. Good, clear, dependable communications. Radio contact frees superintendents and field foremen from extra miles of driving making routine checks. It allows them to spend more time at critical points where they are needed most. Bendix Dyna-Com Radio provides the instant voice contact between all key personnel that results in smoother, on-schedule operation. It prevents duplication of work effort, eliminates lost time for both men and equipment.

FROM SUPPLY BASE TO CONSTRUCTION SITE Bendix 2-Way Radio performs many time-saving functions from supply base to construction site. In addition to solving traffic control problems, it enables you to put equipment where it is needed most in minimum time. Loading tie-ups are avoided, material flow speeded. Complete coordination of men, supplies and equipment through use of Bendix 2-Way Radio boosts over-all efficiency.



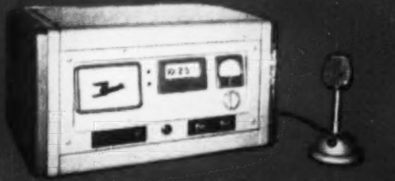
NEW!

Dyna-Com Mobiles Cover all frequency ranges: 25-54 mc; 144-174 mc; 450-470 mc. Available in power outputs from 15 to 60 watts. Interchangeable between 6 and 12 volt vehicles without modification.

NEW!

Dyna-Com Portables Greater versatility and flexibility than any other portable equipment. Compact, lightweight, full 1-watt output. Extra-long battery life. Complete line of accessories including a transistorized, plug-in loud-speaker.

NEW!



Dyna-Com Consoles and Base Stations For 25-54 mc; 144-174 mc; 450-470 mc; delivering from 20 to 60 watts output. Operate from 117 volt AC power lines. Quality engineered for performance and appearance.

NEW!

Bendix Bantam For low-power, limited range application as a mobile unit or base station. Provides more than 1-watt power output. Operates from 6, 12, 24, 32 volts DC or 117 volts AC without modification or costly converters. Adds flexibility to any communications system.

COMPLETE NEW LINE OF PRECISION-BUILT FM MOBILE UNITS AND BASE STATIONS FOR ALL FREQUENCIES!

The result of over 5 years laboratory research and development, Bendix Dyna-Com is the first big advance in 2-way radio in over a decade. All new from chassis to cabinet, each model incorporates all the latest improvements which have made Bendix the foremost leader in railroad and aviation communications; in airborne navigation; in radar and in military electronics.

For example, Dyna-Com's unitized design sets a new standard for performance and dependability. It features plug-in, interchangeable chassis construction which speeds service and saves maintenance costs. Any chassis in the Dyna-Com line can be transferred, without adjustment or modification, between mobile units and base stations.

Find out how Bendix Dyna-Com can boost the efficiency of your organization. Let a Bendix Communications Engineer survey your communication needs without obligation. Call or mail the coupon today for full information on Dyna-Com—*the first big advance in 2-way radio!*

*Reg. U. S. Pat. Off

Bendix Radio
Mobile Sales, Dept. E
Baltimore 4, Md.

Gentlemen:

Please send me complete details about Bendix Dyna-Com 2-Way Radio.

☐ 25-54 mc. ☐ 450-470 mc.
☐ 144-174 mc. ☐ Bantam ☐ Portable

Name ____________________

Title ____________________

Firm ____________________

Street ____________________

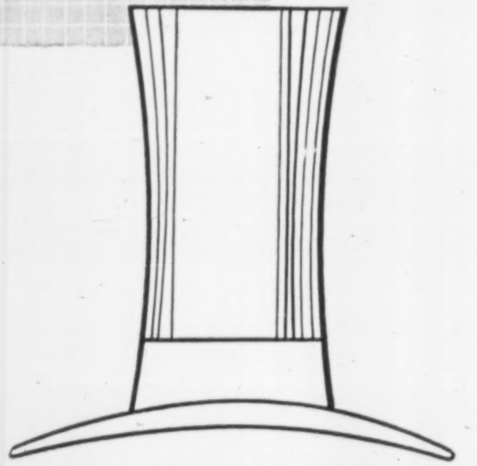
City ____________________ State ____________

Bendix Radio

DIVISION OF BENDIX AVIATION CORPORATION BALTIMORE 4, MD.

ARKWRIGHT ODDITIES

Without measuring, can you tell whether the vertical dimension of the silk hat is greater than, equal to, or less than its horizontal dimension? See answer below.



TOP LEVEL PROJECTS CALL FOR FINER CLEANER-INKING ARKWRIGHT TRACING CLOTHS

CHECK THESE ADVANTAGES and see for yourself why Arkwright Tracing Cloths are now being used on many of the nation's foremost engineering projects.

EASY TO USE Because Arkwright's flawless finish is completely free of pinholes, coarse threads and other imperfections, it eliminates blobbing or feathering . . . assures fast, accurate workmanship on job after job.

LONGER LASTING Arkwright's greater transparency and durable finish prevents opacity and brittleness . . . protects drawings against fraying, tearing and curling for years on end.

FINER REPRODUCTION Arkwright's continuous, quality control processing meets rigid Government specifications . . . assures clean, sharp reproductions on even the most detailed drawings. In the simple drawing above, the vertical dimension is equal to the horizontal dimension.

Use the rolls with the blue line that signifies "America's Standard". Write for free samples of Arkwright Tracing Cloths today. Arkwright Finishing Co., Industrial Bank Building, Providence, Rhode Island.

Arkwright
PENCIL CLOTH
WHITE
Arkwright
TRACING CLOTH
PENCIL TRACING CLOTH

ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 35 YEARS

. . . Reader Comment

In the case of teachers, under a grant from the Ford Foundation, a stopwatch survey was made of 137 teachers in Michigan, to see how their time was consumed. The survey found that 26% of a teacher's time (not counting overtime outside the classroom) was spent in nonteaching chores. After a year's experiment with aides, the teachers reported they could handle 50% more pupils, the parents felt their children had learned more and the kids reported they had enjoyed school more. Further time-studies confirmed that the teachers were putting in a fourth more time teaching, instead of nose-wiping and fund-collecting.

Another interesting result: After a year of service, several aides were so fascinated that they put in for extension courses to qualify as teachers themselves.

In these days of abounding engineering activities, which is going to increase astoundingly in the next 10 years, why doesn't this plan make sense? Are there any engineering organizations, industries or government agencies trying it or willing to try it?

RAYMOND J. ROSENBERGER
Consulting Engineer
Bay Village, Ohio

Sacks, Not Barrels

SIR—We call your attention to an error appearing in ENR Aug. 8, p. 96. At Hungry Horse Dam the mass concrete mix contained 2 sacks (not barrels) of cement plus 90 lb of fly ash per cu yd for the interior. Actually the reduction to this equivalent low 3-sack content was made possible by air entrainment rather than fly ash. The face mix contained 3 sacks of cement plus 90 lb of fly ash which was equivalent to the 4-sack cement per cu yd mix used at Hoover Dam.

L. N. MCCLELLAN
Assistant Commissioner
and Chief Engineer
U. S. Bureau of Reclamation

CALENDAR

Illuminating Engineering Society, annual technical conference and fiftieth anniversary celebration, Statler Hotel, Boston, Mass., Sept. 17-21.

Building Research Institute, Modern Masonry Conference, Hall of Flags, U. S. Chamber of Commerce Bldg., 1615 H St. N.W., Washington, D. C., Sept. 19-20.

Noise Abatement Symposium, seventh annual meeting, Hotel Sherman, Chicago, Ill., Oct. 11-12.

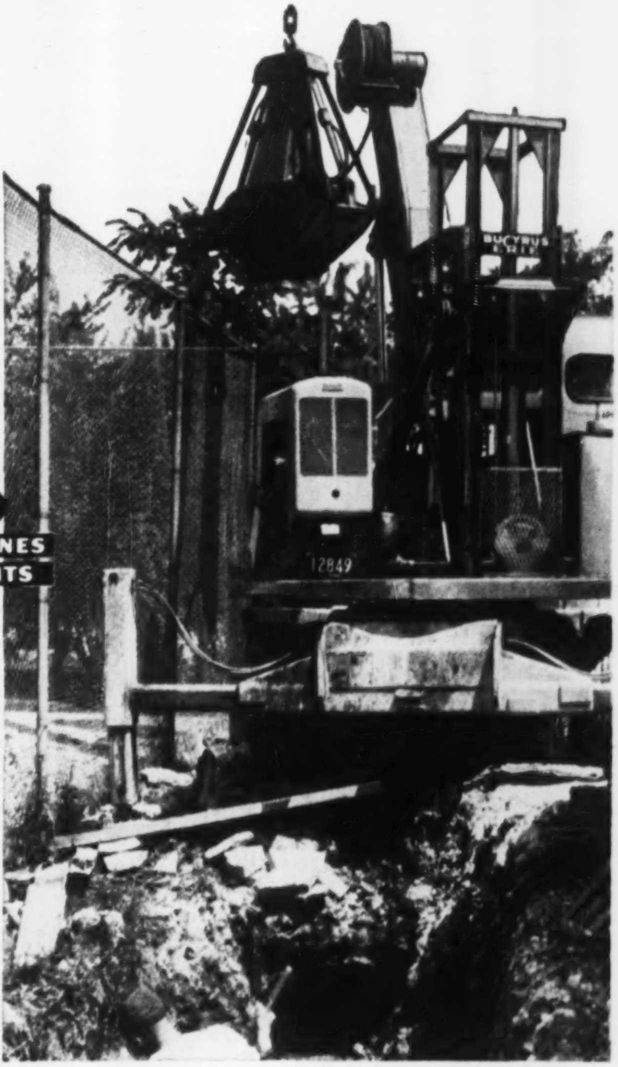
American Concrete Institute, 9th annual regional meeting, Sheraton-Mount Royal Hotel, Montreal, Canada, Oct. 24-25.

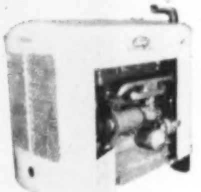
"FORD POWER STARTS QUICKLY

hangs on to heavy loads — doesn't hesitate a bit!"

says FREDERICK VOLK, Fox Point, Wis.

"We handled approximately 60 cubic yards in close quarters with the clam shell in about three hours work. We were digging a drainage trench for a 42" culvert and had to go around various obstacles including trees and a 12-ft. fence to swing the clam over with the load. I like the Ford power of this Hydrocrane because it starts quickly—hangs on to heavy loads and it doesn't hesitate a bit!"





Ford
INDUSTRIAL ENGINES
AND POWER UNITS

The Bucyrus-Erie Model H 3 Hydrocrane that Mr. Volk operates for the village of Fox Point is powered by a Ford "172" industrial engine. Built for versatility, mobility and economy, the Hydrocrane gives precision control through a hydraulically operated closing bucket and a variety of attachments. Upper deck revolves 360° with telescoping high-lift boom capable of from 30- to 38-ft. full load length. Hoist rams provide free line speed of up to 190 f.p.m. with 6,000 lbs. line pull. Ford Industrial Engines can provide similar power plants for all the major types of construction equipment.

It will pay you to specify Ford engines on your next piece of equipment because Ford is the only industrial engine manufacturer to offer modern Short Stroke design in a *full line* of overhead-valve 4-, 6- and 8-cylinder engines. These engines cut piston travel and piston speed which reduce friction and wear. The result is more usable power and extended engine life. This means you get jobs done quicker and more economically.

Right down the line . . . from the 134- and 172-cu. in. 4-cylinder engines . . . to the powerful 6-cylinder 223-cu. in. engine . . . and the big heavy-duty V-8's of 272 and 332 cu. in. displacement, you'll find Ford engines are years ahead in engineering. Engines that are designed to give power-packed performance more economically and for a longer period of time.

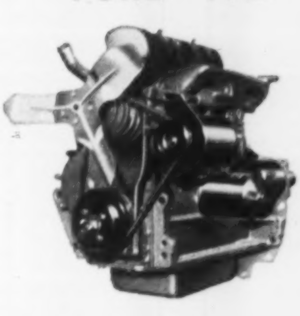
Autothermic pistons help maintain proper piston-to-wall clearance and prolong engine life.

Large overhead valves of high chrome-nickel alloy improve volumetric efficiency, resist warping.

Free-turn intake and exhaust valves reduce the possibility of valves sticking, help maintain compression longer.

Iron Alloy sleeves are centrifugally cast for better heat transfer and wear characteristics plus longer cylinder wall life.

FORD "172"



For detailed information, phone or write today to:

INDUSTRIAL ENGINE DEPT., FORD Division of FORD MOTOR COMPANY, P.O. BOX 598, DEARBORN, MICH.

New Indiana Toll Road Features Armco Guardrail for Added Safety

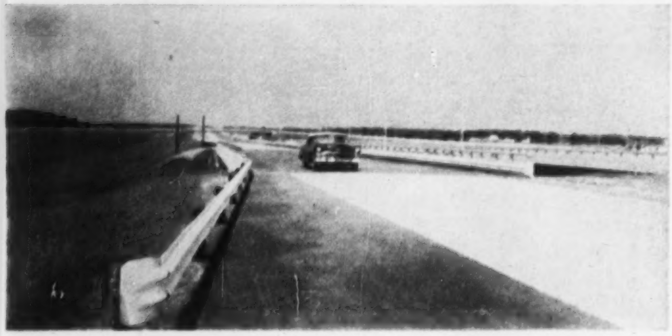
More than 100,000 feet of strong, easy-to-see Armco FLEX-BEAM® Guardrail will protect motorists at key points on the new Indiana Toll Road.

AT CURVES

BRIDGE APPROACHES

GRADE SEPARATION STRUCTURES

Highly visible, corrugated face of Armco FLEX-BEAM Guardrail adds safety to this gentle curve near the eastern end of the Indiana Toll Road.



Bridge approach shows how Armco Guardrail flares out from the bridge. Provides protection beyond the limits of the structure. Driver confidence is increased.

Armco Guardrail functions as a flexible barrier around the massive piers of this grade separation structure. FLEX-BEAM has just the right amount of flexibility combined with high beam strength to cushion the shock of a collision and re-direct the vehicle along the right-of-way.

Write us for helpful data on Armco Guardrail. Armco Drainage & Metal Products, Inc., 5746 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO FLEX-BEAM GUARDRAIL

ARMCO®

8 Reasons Why UNI-FORM Panels are the most widely used Prefabricated Form in the Industry

VERSATILITY

Uni-Form Panels will form straight, irregular, curved, battered walls . . . slabs, beams, columns, piers—everything from small house foundations to massive concrete structures.

COMPLETE — READY TO USE

The Uni-Form Panel System is complete, ready to use when it reaches the job. Eliminates field fabrication. Result: FASTER JOB STARTS.

FAST ERECTION

Simple assembly of easy to handle panels increases productivity of labor. Form more contact area per man hour with Uni-Form Panels.

AUTOMATIC ACCURACY

Assembly of Panels with Uni-Form Ties furnished for any wall thickness insures automatically accurate forming. Tie positively locks and spreads panels. No measuring . . . no guesswork.

LUMBER SAVINGS

You use less lumber in Uni-Forming. Steel-framed panels erect into a tight, rigid form requiring minimum alignment and bracing on 1 side only—regardless of height. Saves labor too.

FASTER STRIPPING

Less alignment and bracing lumber . . . fewer parts to remove means faster stripping, lower costs.

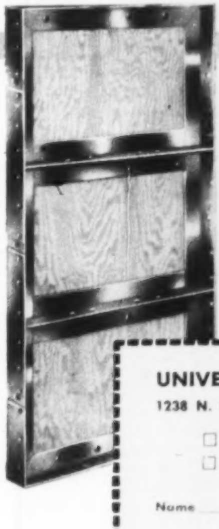
LONG LIFE

Rugged steel frame designed for fast pouring, cradles and protects plywood edges . . . permits maximum re-usage of plywood (actually 50 times or more) before replacement is necessary. Minimum panel maintenance required . . . lower material costs.

EXPERT ENGINEERING SERVICE

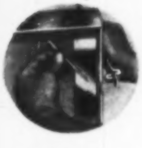
Universal's engineering staff and field engineers provide competent, specialized assistance, backed by over 40 years of experience in concrete forming.

Branch Offices and Warehouses at: Los Angeles • San Leandro, Calif. • Houston, Texas • Cleveland, Ohio • Baltimore, Md. • Atlanta, Ga.



3 SIMPLE STEPS FOR ASSEMBLY

1.
Insert Tie loop in Panel tie hole.



2.
Tie Key locks Uni-Form Tie to Panel.

3.
Tie loop receives adjacent Panel. Insertion of Tie Key completes tieing, locking and spreading operation.

3 BASIC ELEMENTS

UNI-FORM PANEL
. . . Heavy duty — steel-framed, plywood faced.

UNI-FORM TIE
. . . High strength, easy break-back.

UNI-FORM TIE KEY
. . . Wedge shaped for fast, easy insertion and removal. Re-usable.

UNIVERSAL FORM CLAMP CO.
1238 N. Kostner Avenue • Chicago, Illinois

☐ Send me complete details on UNI-FORM Panel System.
☐ SHOW ME! I am sending plans under separate cover.

Name ______________________
Firm ______________________
Address ______________________
City ______________ Zone ______ State ______

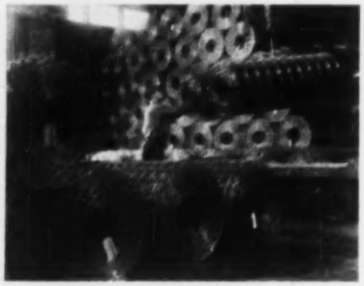
CONTRACTORS GUIDE
to Ryerson Steels and Services

Supply problems are delaying many construction projects today, but you can keep jobs moving ahead unhampered by steel shortages when you build with reinforced concrete—and depend on Ryerson reinforcing service.

So for your buying convenience here's a quick review of Ryerson steel products—all in good supply—and Ryerson services for contractors—all readily available to you.

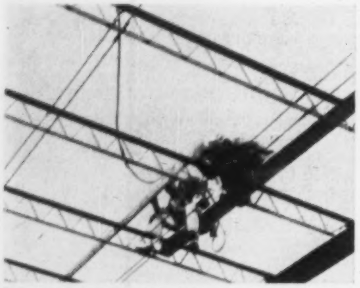
See your Ryerson Steels catalog for the complete list of products—including all construction steel accessories, threaded bars, turnbuckles, caisson rings, etc., and write for our bulletin (No. 70-2) on specialized reinforcing service.

RE-BARS—New-billet, deformed reinforcing bars in stock at 15 Ryerson plants. Designed for highest bonding power, bars conform to all building codes and to ASTM specs. A-15-52T and A-305-50T.



WIRE FABRIC—Electric-welded fabric of cold drawn wire in rolls available from stock in a wide range of standard gauges and spacings. Special gauges and spacings furnished to order.

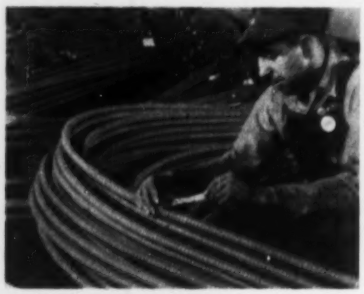
SPIRALS, for column reinforcement—Made from hot rolled wire rod or cold drawn wire in ¼", ⅜", ½" and ⅝" diameters complete with channel spacers. Collapsible for shipment.



OPEN WEB STEEL JOISTS—All welded, designed for maximum strength, minimum weight in accord with Dept. of Commerce standards. Available in 4' to 40' lengths and 8" to 20" depths.

DETAILING—Expert Ryerson detailers can furnish complete setting diagrams and bending details that effect substantial reduction in re-bar placement costs.

FABRICATING SERVICE—Modern equipment and competent personnel to cut, bend, weld, thread or otherwise prepare any tonnage of construction steels are ready to work for you at Ryerson.



POSITIVE IDENTIFICATION—Permanent tags that cannot be defaced or torn off accurately identify every piece of Ryerson reinforcing steel—so correct placement on the job is quick and sure.

STEEL FORMS for concrete joist construction—Standard removable steel forms, slip or nail-down type, furnished in 20" or 30" widths. Special filler forms in widths of 10, 15, 20 and 30 inches.

DEPENDABLE DELIVERIES — Huge Ryerson stocks and big fabricating capacity enable us to meet most any delivery requirement. Your schedule sets the pace—Ryerson steel rolls to meet it.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. • PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI
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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

ELECTRONIC GARBAGE WEIGHING—New York City's Department of Sanitation this month will begin installing electronic weighing systems at each of 30 incinerator and landfill sites. Each system comprises a weighing platform and an automatic electronic computer. Heart of the weighing mechanism is a strain gage which senses weight by measuring minute elongations of a steel column. After observing a test installation for more than a year, the city was enough impressed with the ruggedness and continued accuracy of the scale to lay out $485,000 for the 30 units.

PLASTIC DIKE-COVERS?—A plastics manufacturer, back from Holland, where he was a guest of the Netherlands government, says a woven nylon mesh could replace the woven willow branches used in dike construction. He is reported as having looked into the possibility of using the plastic fabric on a 30-mile long dike in Holland.

HYPERBOLIC PARABOLOIDS COMING—The hyperbolic paraboloid thin-shell concrete roof—well known in European, Mexican and South American construction—may soon be coming to the U.S. on a large scale. A. A. & E. B. Jones Construction Co., Denver, Colo., has completed successful tests of a 40 X 40-ft trial thin-shell section. The firm will manufacture a form system that Great Southwest Corp., Dallas, Texas, will use in construction of a 5,000-acre industrial district between Dallas and Forth Worth.

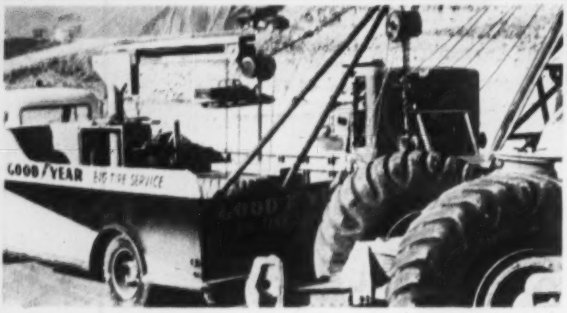
ANOTHER TRY—Six years after laying out $310,000 for a controversial zoning plan that was never brought to a vote, New York City plans to spend another $150,000 for a study aimed at replacing the present zoning law, adopted in 1916. Harmony won't prevail this time either, if first indications hold good. Robert Moses, outspoken City Park Commissioner who opposed the 1950 study, has denounced the new effort as a "revolutionary scheme."

SEAWAY PRICE-HIKE—The St. Lawrence Seaway Development Corp. will ask Congress next session for authority to borrow more money. Rising costs—labor and materials—are blamed by the agency for an additional $5 million on the original estimate of $105 million. Actually, $17 million of added borrowing power will be asked, but $12 million is said to be for contingencies; not likely to be needed. The development corporation states its redesign of the bridge across the Seaway, making it a suspension structure (ENR Aug. 2, p. 22), will save $2 million and mean no delay in final completion of the project scheduled for the 1959 navigation season. As of now, the project is claimed to be on schedule.

GOODYEAR WAS THERE!

BIGGEST CUT IN U.S. ROAD-BUILDING HISTORY TO HELP BREAK CALIFORNIA BOTTLENECK

SECOND ONLY TO THE PANAMA CANAL in earth-moving magnitude, this 8½-million-yard cut will result in a canyon 1,370 feet wide and 350 feet deep at San Francisco's Carquinez crossing. Although much rock is being encountered, blasting is kept to a minimum and rippers and scrapers help keep the pace close to 30,000 yards per two-shift day! Goodyear 3-T Nylon Cord HARD ROCK LUG tires are taking this tough job in stride.



HOIST EQUIPPED RIGS make quick work of tire maintenance —help cut tire-cost-per-yard to new lows.

Another bottleneck broken!

TUBE AND FLAP TROUBLES ENDED FOREVER

with Triple-Tempered 3-T Nylon Cord

TUBELESS TIRES!

AIR DOESN'T SEEP THROUGH 3-T CORD BODIES — and Goodyear's mounting program is quick, safe, airtight, from smallest to largest sizes.

That's why Goodyear TUBELESS tires and rims are standard on foremost original equipment—and can be specified for *all* equipment.

But there's no need to wait. You can get all regular Goodyear features—plus the following TUBELESS advantages by changing over present equipment NOW:

No tube or flap troubles! No tube replacements! Easier mounting! Airtight assembly! Cooler running! Slow leaks instead of blowouts! Easier repairs! Simpler, re-usable valve parts! Simply contact your Goodyear dealer. Goodyear, Truck Tire Dept., Akron 16, Ohio.

Buy and Specify **GOODYEAR**

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

Road Lug, Sure-Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

NOW IN 3-T NYLON CORD — TUBE-TYPE OR *TUBELESS!*

HARD ROCK LUG
HARD ROCK RIB
ROAD LUG
ALL-WEATHER
SURE-GRIP LUG
GOODYEAR TIRES

Look for this nearby Goodyear dealer sign for better tire values—better tire care.

WASHINGTON OBSERVER

Lending policies of the federal home loan banks—the central bank system for the savings and loan associations—will be reviewed shortly. The heads of the 11 district banks will come to Washington to appraise the outlook for the new chairman of the Federal Home Loan Bank Board, Albert J. Robertson who replaces Walter W. McAllister who resigned June 18. Robertson is an Iowa banker who has been Assistant Postmaster General.

•

Mortgage lending by savings and loan associations may go up this year, in the opinion of some experts close to the industry. This goes against the generally accepted appraisal of the money market, which is that money available for the mortgage market will be tighter and tighter, with the credit restrictions being applied by the money managers.

Net savings in the associations are running higher this year than last—and noticeably so. Money coming in from mortgage repayments is also increasing. In general, this puts the associations in a better position to make construction loans than had been generally expected. Most of their lending goes into conventional mortgages.

Figures so far show building and loan lending down 8%—that's for the first six months of this year. But, the optimistic view is that the industry may well equal last year's record of $11.5-billion by the time the year is over—possibly even exceed it by a small margin. Dollar volume of mortgage loans made by the associations has been increasing steadily ever since January.

More than one-third of residential building is financed by the associations; they're the biggest single source of home-building funds.

•

New highway administrator has tough problem on highway location to face as soon as he gets his feet under the desk. Already, the fights are going on inside the states where the issue resolves itself mainly to this question:

Shall the interstate route be shunted around small towns, particularly those whose main street is so narrow as to make it too expensive to widen the road to meet the new federal standards.

State politics make it sure that the issue will come to Washington. Word is reaching officials here that small town officials—backed up by their representatives in the state legislatures—are putting up such fights in behalf of their constituents.

Pressure will be brought to bear on the Bureau of Public Roads, too. This is one of the main reasons behind the campaign, led by Senator Gore, to make the bureau more independent of political considerations. Gore wanted a presidentially-appointed independent commission to have charge of the huge new spending program. The administration answer, which was adopted, was to create a new Federal Highway Administrator, appointed by the president to give the head highway official greater prestige.

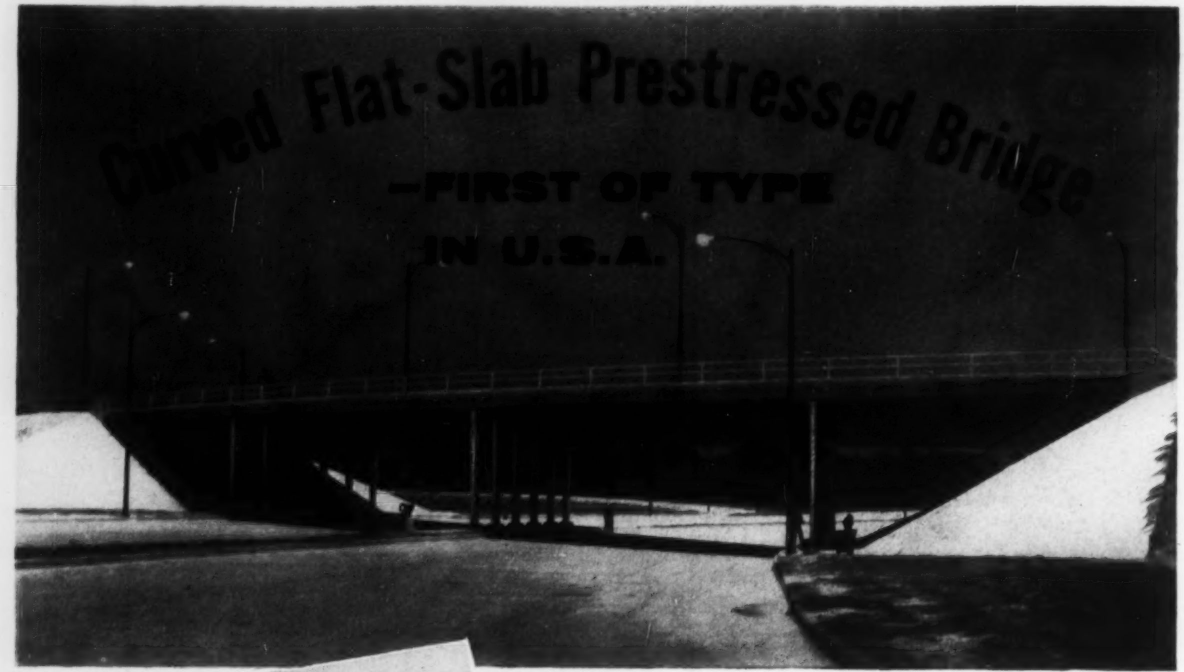
The question is how rigidly will the superhighway standards be applied in borderline cases. There will be plenty of cases in the 26,000 miles of interstate mileage yet to be approved as to final location.

•

The administration is opposing the great lakes compact already approved by several of the 8 Great Lakes states. The commission, already organized, would be empowered to include Quebec and Ontario as members of the advisory and consultative body, under legislation introduced in Congress. The State Department, however, objects vigorously against the new group having any official standing in U. S.-Canadian affairs.

Curved Flat-Slab Prestressed Bridge

—FIRST OF TYPE IN U.S.A.



● Use of prestressed concrete in bridge construction was extended in several directions in building this attractive bridge in downtown Houston.

The structure is a flat-slab, continuous over three sets of columns. The deck follows both horizontal and vertical curves. Column rows are skewed at different angles with respect to bridge's centerline, which is curved to a radius of 764 ft.

Despite problems created by continuity, curvature and skewed supports, the deck was prestressed with steel tendons continuous over the full 225-ft. length. This steel also undulates in a vertical plane to apply upward and downward forces that counteract bending stresses due to loads on the deck.

The new bridge carries six lanes of traffic on Waugh Drive over an extension of Memorial Drive, which it intersects at a 45 deg. angle. The flat slab deck is 72 ft. wide. Stringent clearance requirements dictated the use of flat-slab design.

The public is pleased with the beauty and utility of this unique bridge. Designer and Contractor are equally pleased with the performance of Lone Star Cement, 12,500 bbls. of which was used in this attractive structure.

WAUGH DRIVE-MEMORIAL DRIVE INTERCHANGE, Houston, Texas

Engineer:
FRANCIS J. NIVEN & ASSOCIATES, Houston

General Contractor:
CONSTRUCTORS, INC., Houston

★

Subcontractor, Prestressing:
TEXAS STRESSED CONCRETE CORPORATION
Austin

Lone Star Cement supplied by:
W. D. HADEN COMPANY, Houston

LONE STAR
PORTLAND CEMENT
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PORTLAND CEMENT
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GSA's Public Buildings Service set for . . .

A Big Spurt in Federal Lease-Purchase

Vincent B. Smith
Washington Staff

With its forces strengthened and streamlined under a new organization plan, the Public Buildings Service this week is putting added power behind its huge construction program—driving hard to get projects under contract.

Bigger by far than any previous construction assignment handed the government's building agency, the program already embraces some 75 projects that will cost more than $700 million.

These building jobs, all of them to be completed within four years, according to present schedules, should boost the rate of construction spending on PBS projects from $32 million last year to some $300 million by fiscal 1959.

There is much more to the program, of course, than the work already approved for construction. Behind the committed projects are many more coming up for approval this year, next year and in the years beyond.

These added projects can be counted on to maintain the program at the 1959 level through the following years. Among them are 31 buildings costing $225 million that already have passed congressional inspection and now are under study by the Budget Bureau. These projects as well as a number of others, now being readied for submittal, are expected to get the green light for design and construction by next spring.

• Bulk Is Lease-Purchase

Federal building projects to be privately financed and constructed under lease-purchase contracts make up the bulk of ready-to-go construction. The list includes 68 lease-purchase projects that add up to nearly $470 million.

With them, PBS has five large buildings and several smaller ones to build with federal funds directly appropriated by Congress. These federally financed projects, amounting to well over $200 million, make up the balance of the $700 million program now in the works.

• The Construction Team

PBS has a strong and able management to bull-dog its heavy construction load. At the head is Franklin G. Floete, who took over last March as Administrator of General Services.

Floete in his past business and construction life has had experience with deferred purchase of buildings. As Assistant Secretary of Defense for Properties and Installations, long before there was any thought of a GSA post for him, he watched with keen interest the progress of the lease-purchase legislation that has sparked the big increase in PBS construction.

Now that he is in the top GSA spot, responsible to the President and to Congress for the success of the program, Floete is backing PBS to the full. He believes firmly in the construction of new federal buildings wherever needed. "They are good for the towns and good for the government," he says.

Floete notes, though, that some states have been missed in the roundup projects so far recommended. A number of states have no project on the list, and many others have only one. Floete points out that the big federal concentrations are in the large cities, and they should get first attention. Beyond that need, however, PBS is seeking now to develop projects in states that have garnered little or nothing to date in the lease-purchase effort.

At GSA as in his previous defense post, Floete finds one of his biggest problems is "getting the jobs under contract." More speed in readying the projects for bids is a major objective for him and his PBS people. They would like to see faster output on design by architect-engineer firms. In spite of delays on some jobs, however, Floete hopes to have final plans by Christmas for all, or nearly all, of the projects now under design.

Even before he took office at GSA, Floete was combing the field for an able man to head PBS. His search ended in early May, when he named F. Moran McConihe Commissioner of Public Buildings.

McConihe left a pleasant White House post to take the job. Eisenhower had made him a special consultant several months earlier to speed plans for removal of temporary buildings from the national capital. McConihe won quick acclaim for his success in getting agreement on programs that would permit new buildings to go ahead—some of them as lease-purchase projects.

McConihe has a background in real estate with building construction experience that is reinforced by the professional and technical competence of his top people at PBS. He and his staff chiefs agree that the agency gained strength for its big job from the reorganization completed last week.

• Planning Office Added

In its biggest change, the new setup adds a planning office that will act as leader and advance agent, for programming and coordinating all real estate activities. Similar top-level offices are established for the three previously functioning divisions: design and construction, acquisition and disposal, and building management.

All four offices under McConihe participate in the development of new projects. As one of its main purposes, the new planning office maintains constant contact with other agencies and gets information well in advance of their projected space needs throughout the country. The acquisition and disposal office comes into the picture early on site problems, and the building management contribute heavily with data on space requirements and factors affecting efficient use and economy of operation and maintenance.

In all, the commissioner established five new positions, filling three from inside PBS and two from other agencies. With the deputy commission they might be described as the technical operating group for the agency. They include an architect, three civil engineers and a pair of experts in building management and the buying and selling of real estate.

Higher ranking positions as assistant

. . . Big Years Ahead for PBS – and Its Top Personnel

F. G. Floete, GSA administrator

Top echelon of PBS assembles with Commissioner F. Moran McConihe, center. Left to right are John Strawser, Administrative Officer; William Schmidt, Asst. Comm. for Planning; Leonard L. Hunter, Asst. Comm. for Design and Construction; Charles A. Peters, Asst. to Comm. McConihe; Fred S. Poorman, Deputy Comm.; Lawson B. Knott, Jr., Asst. Comm. for Buildings Management; Fred Hartzch, Special Asst. to the Administrator; David S. Phillips, Asst. Comm. for Acquisition and Disposal.

commissioners are created for the heads of the four offices. More important, the new plan assigns clearly defined responsibilities to each office and gives each assistant commissioner full authority in his area. This authority extends to professional and technical supervision of related personnel in regional offices, even though these field employees nominally are under the control of regional directors only.

The reorganization also gives McConihe a new assistant to the commissioners. There is no change in the post of deputy commissioner, where Fred S. Poorman continues on the job he has filled since January 1955.

On the basis of such facts and recommendations, correlated by the commissioner and his deputy, the design and construction office prepares the basic requirements and schematics for a building, prior to selecting a design contractor. All interested architect-engineer firms in the state or broader area where the site is located are invited to fill out a qualifications form, and selections are made from this group for negotiating an architect-engineer contract.

When the successful A-E contractor has worked up the general design and perspectives for his concept of the building, with such advice from the PBS office as may be needed, the agency approves the plans. The design firm then produces the working drawings and specifications for putting the job out to bids.

Specifications are based on new standards which PBS adopted last year. The agency showed it was alive to new developments and changes in design and construction practices by getting together a committee of consultants from private industry to recommend revisions in the old standards. Present PBS standards are the result of that study, aimed at putting government building criteria in line with the best commercial practice.

• PBS Solid Foundation

PBS has a solid staff on which to build as the demands of the construction program increase. Its professional, technical and specialist personnel number 554 as of now. In this group are 268 engineers (including 44 architectural engineers engaged mainly in writing specifications), 61 architects, and 144 specialists in real property or its appraisal and acquisition.

Additional people in the professional and specialist categories will be recruited. But some procedures may be modified to reduce the load. At present, for example, PBS plans to handle the supervision and inspection of construction on lease-purchase projects. This would call for some 250 men when the program builds up to 70 going projects, and construction supervision may be delegated to others.

• A Phenomenal Job

PBS has done a phenomenal job in getting lease-purchase projects under way within the brief two years since the law was passed. Meeting and mastering all the difficulties of launching an entirely new program, the agency got clearance on 26 projects in the first (1955) congressional session following enactment and began prompt award of architect-engineer contracts—the first on May 19 of last year.

Invitations to bid on investor-builder contracts had to await completion of building designs and the drafting of new procedures and contract documents. The first award for financing and constructing a building was made June 27, and bids for two other projects are to be opened this month.

Here is the PBS score to date on its 68 approved lease-purchase projects: one $2-million project under construction; bids asked on two others that will cost about $14 million; bid invitations expected soon on eight additional projects amounting to $27 million that are now in final design stages; bids to be asked later on 15 jobs worth $55 million under design by architect-engineer firms but not yet advanced to the final phase of working drawings and specifications; and, finally, 42 projects totaling $370 million for which PBS is selecting architect-engineer organizations to handle the design.

Contract documents for the financing and construction of lease-purchase projects were firmed up in final form last month by PBS and its parent agency, the general services administration. Separate bids will be invited, as in the past, for financing and for construction, as well as combination bids covering both functions.

Maximum interest that an investor may charge on his financing bid is held at 4%, the top rate set by the budget bureau for all lease-purchase construction. In light of current high costs for money, interest is centered this month on the two bid openings at Kansas City Sept. 18 and Atlanta Sept. 27 to see whether the 4% ceiling is feasible.

A new change in GSA's lease-purchase rules reduces the contract term for projects costing less than $2 million from 25 years to 10 years. Shortening the period during which the government makes installment payments, like rent, until it acquires title to the property, will save money both in interest charges and in local taxes. Lease purchase properties pay local taxes until the government takes title.

Documents and full information on lease-purchase procedure and projects up for bids are available from PBS headquarters in the GSA building, Washington 25, D. C., as well as from GSA regional offices responsible for ten areas, in Boston, New York, Washington, Atlanta, Chicago, Kansas City, Dallas, Denver, San Francisco and Seattle. The regional offices which are smaller counterparts of the central office in Washington, take and open bids on projects in their territories, but prospective bidders can obtain plans and specifications from either the regional office in charge or the main office.

Most of the additional construction that is sure to augment the PBS program in the future will consist of lease-purchase contracts. Congress and the administration are thoroughly sold on this method of acquiring new government buildings without increasing the national debt.

Before Congress adjourned, the public works committees of both houses approved 31 such projects, estimated to cost $225 million, subject to later review and approval by the Budget Bureau. The Senate group set a 60-day time limit for the bureau's decision. Sept. 24 is the deadline. Most of the projects are likely to be held up for further study, but final approval won't be long delayed after all questions are settled. In the meantime, PBS will be submitting additional projects to the Budget Bureau and to Congress.

• Federally Financed Jobs

Federally-financed construction, however, accounts for a substantial slice of the current PBS program. With the federal budget in the black, Congress and the administration have shown more willingness to use federal funds for badly needed facilities that will improve efficiency and speed the removal of temporary buildings.

Right now, PBS has design work under way by architect-engineer firm for four large federally financed buildings that will cost $165 million. The site is being acquired for a fifth, to cost $40 million, with a design contract to follow after the land has been assembled. All these buildings are in Washington, except one $25 million project in Baltimore, for which final drawings and specifications are now being prepared.

Other smaller projects increase the federally financed portion of the current PBS program to more than $225 million. If the government continues in a favorable fiscal position, Congress may approve more projects for construction with appropriated funds. The congressional committees as well as the administration, are well aware that direct federal construction results in lowest cost to the government, with lease-purchase as second choice, and leased space as the most expensive.

Construction is not the only function of PBS. It acts also as real estate agent, manager, operator and custodian of building space occupied by government agencies outside of military and other reservations, except in single-purpose structures of the Post Office Department and some other units.

On this broad front, PBS holds

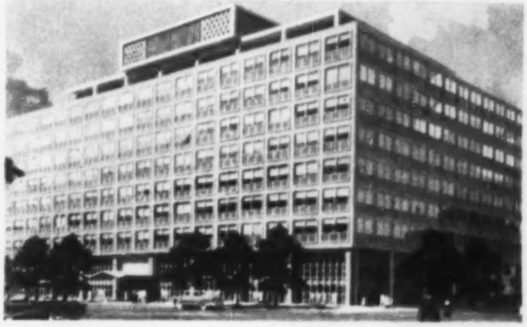
New GSA-Approved Designs Keep Pace With the Times

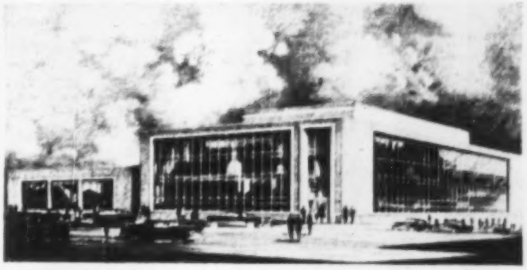
Buildings currently being approved by GSA for lease-purchase construction are setting their own distinctive style in architectural design. Easy maintenance, elimination of costly embellishments, harmonization with neighboring buildings, and clean lines are apparent goals in the new structures.

Two U. S. Post Office and Court House buildings, for which GSA is inviting financing and construction bids, well illustrate this trend. Although one will have nearly five times the floor area of the other, there is a similar theme in both.

The larger building (Omaha, Neb.) will be of reinforced concrete, nine stories high, and offers a gross area of 400,000 sq ft when completed. Estimated cost is $9.6 million. Its exterior is a grid of aluminum-framed squares, each enclosing two pivot-sash windows above a horizontal panel of opaque glass. Vertical and horizontal strips of face brick set off the squares. The building has a two-story recessed base of granite with aluminum-trimmed windows. A central core houses six elevator shafts, a stairway and washrooms.

The smaller building (Jamestown, N. Y.) will be a two-story, L-shaped structure with a floor area of 84,000 sq ft. Similar to the Nebraska building will be the extensive use of glass employing windows interrupted by alternate bands of porcelain-enameled steel panels. A further common denominator will be its reinforced concrete frame with brick facing. The main section of the building is a two-story section, which will contain the post office on the ground and first floors and a court room for the U. S. District Court on the second floor. Total cost including site will be $1.8 million.


OMAHA, NEBRASKA, U. S. Post Office and Court House.


JAMESTOWN, N. Y., U. S. Post Office and Court House.

complete management responsibility for 1,000 federal buildings in the principal centers and, in addition, maintains some 4,000 buildings that are in its own custody, plus another 1,000 in the custody of the Post Office. In the first thousand buildings, all of them large and either owned or rented in entirety by the government, the managing agency provides all services from utilities, heating, telephone and telegraph to elevators, cleaning and guards on duty.

This wide building management experience gives PBS a background that is highly useful in planning new projects. It also points up the inefficiency and inadequacy of much of the government's present plant. Deputy Commissioner Fred S. Poorman narrows to 4,500 the buildings for which PBS is directly accountable, containing about 100 million square feet of floor space. Of that number, he says, 31 are over 100 years old, and 12 million square feet is inclosed in structures that have passed the 50-year mark.

PBS traces its origin back 120 years to 1836, when Robert Mills was appointed federal architect. During most of those years, government architects designed federal buildings. Since 1945, however, the trend has been toward use of private firms to do the design.

That transition has now become complete. All PBS projects—whether government-financed or lease-purchase—are designed by A-E contractors.

THERE'S GARBAGE INSIDE—Behind this attractive facade there's a . . .

Compost Plant Set to Serve City

Some 1,500 people from 100 cities here and abroad turned out for the opening last month of a 150-ton-per-day municipal refuse composting plant at McKeesport, Pa.

The process is called Orcoa; the product is called Orcoa. The plant has been designed, built and will be operated by Organic Corporation of America, a Pittsburgh affiliate of H. G. Burr Co., industrial designers.

McKeesport will deliver its refuse to this attractive, completely enclosed plant. Inside, after magnets and hand-picking remove metals, the refuse is to be ground, inocculated with a "secret" cultured bacteria and piled for 14 to 21-day composting. Later screened and bagged, Orcoa will go to market from McKeesport at a $3.98 per 80-lb-bag, retail price.

Organic Corporation says it can build these plants for $1,500 per ton of capacity. McKeesport's is its first, except for a 75-ton pilot operation which has been running in Miami, Fla.

Aside from the bacterial catalyst (which some compost enthusiasts claim is not necessary) the process looks not unlike that of Compost Corporation of America, a West Coast venture (ENR June 26, 1952, p. 44). Both claim to take 21 days. A big difference—aside from any details of material handling—is that Orcoa's plant is enclosed, and therefore is claimed to be operable in colder climates.

Orcoa offers cities two deals: It will build with its own funds or lease a city-built plant. Either way, it controls operation, plus the end product.

McKeesport is a city of 50,000 which produces about the average of 2 lb of refuse per capita per day.

Billion for Schools

New York City Establishes Ten-Year New School Costs

To meet school construction needs, New York City should spend at least $1 billion in the next ten years. This was the estimate put before the City Planning Commission this week by Charles J. Bensley, chairman of the Board of Education's Committee on buildings and sites.

Bensley asked the commission to approve the school system's 1957 capital budget request of $127 million and indicated that schools in New York City would require more than $100 million for each of the next eight or nine years. He said requests for 1957 would provide $108 million for the construction of thirty-two new school projects and the planning of thirty-one others.

The $19 million remaining results from cost and bookkeeping adjustments.

New construction projects will include eighteen elementary school, eleven junior high school and three high school projects—enough to accommodate 26,821 pupils. Slated for planning are twenty-two elementary school, seven junior high school and two high school projects to take care of an additional 22,774 pupils.

Joseph B. Cavallaro, chairman of the Board of Higher Education, requested $26.4 million for the city's college system and stressed the necessity of furnishing enough funds to provide an experienced and adequately paid staff in the architectural and engineering unit of the board to supervise college construction.

St. Louis Awards Engineering Contracts for Traffic Study

Joining a parade of cities in taking a long, careful look at its traffic congestion and means of easing it, St. Louis, Mo., last week had awarded two engineering contracts for studies to cost more than $500,000. The studies will cover St. Louis itself, and St. Louis County.

Handled through the Citizens' Metropolitan Transit Committee of St. Louis and St. Louis County, one contract went to W. C. Gilman & Co., New York consultants, for a study of land use and population development; existing and proposed mass transit facilities.

A second contract—to be financed by the Missouri State Highway Department, went to Wilbur Smith & Associates, New Haven, Conn., for a survey of present highway travel patterns in the area.

Permit Granted

Pulp mill won't close but conditions must change

Rayonier, Inc., has been granted a temporary permit by the Washington State Pollution Control Commission to continue disposal of waste materials from its Shelton pulp mill into the waters of lower Puget Sound (ENR Aug. 2, p. 22). The state agency prescribed a list of conditions which must be met before the mill can get a permanent permit next year.

Winston Scott, plant manager, had said the mill would have to be closed if the dumping was not allowed, but had announced his company was prepared to spend $100,000 to eliminate any possiblity of pollution from mill operation.

The plant burns most of its waste liquor but small amounts have been dumped into the sound. Under the permit, these amounts will be limited. The conditions necessary for a permanent permit deal with measure to prevent dumping of sulfite waste liquor, sanitary sewage and other polluting substances into the sound, which also is used extensively for oyster growing.

Oystermen contend their oyster beds are being depleted because of pollution caused by the mill.

Prestressed Concrete Bridge Will Have Many 120-ft Spans

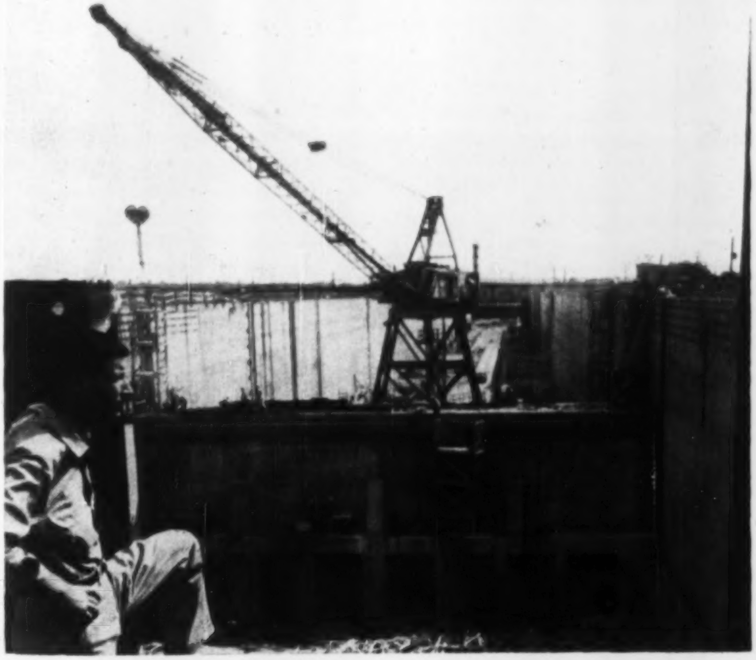
A $4.3-million prestressed concrete bridge to be built across the Connecticut River between Windsor and South Windsor, Conn. will comprise 14 spans each 120 ft long. Originally it was believed the 1,680-ft distance would be bridged by prestressed spans up to 172 ft.

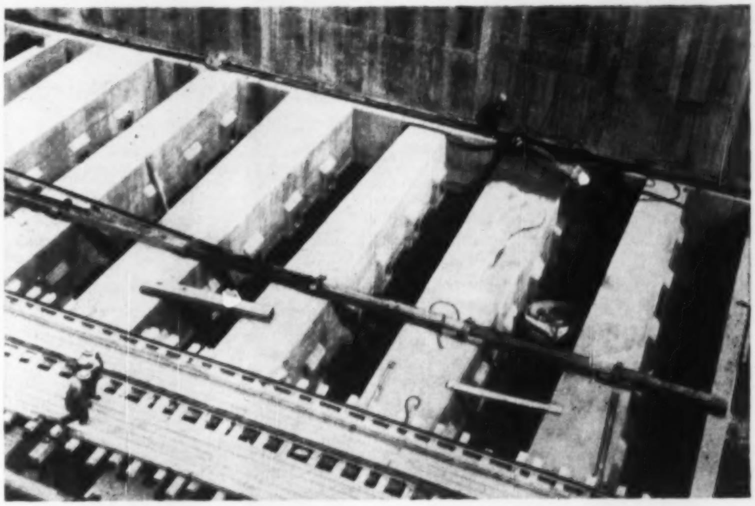
The four-lane structure will be designed by Thomas Worcester and Co., Boston, Mass. Piers of the closed type will be of pre-packed concrete. Clearance will be 47 ft above the water. Including approaches, total cost is set at $10.5 million.

Indiana Plans Celebration For Opening of New Turnpike

What Indiana boosters claim will be the biggest celebration marking the dedication of a construction project in the state's history will be held Sept. 17, centering at South Bend.

The fanfare will herald the official opening of the State's 156-mi toll road, linking Chicago with the Ohio Turnpike. Actually, the final 16-mi western stretch of the Indiana road won't be ready until Nov. 15, but the dedication for the whole job will be held Sept. 17 anyway.





Big Lock Will Be Ready Next Summer

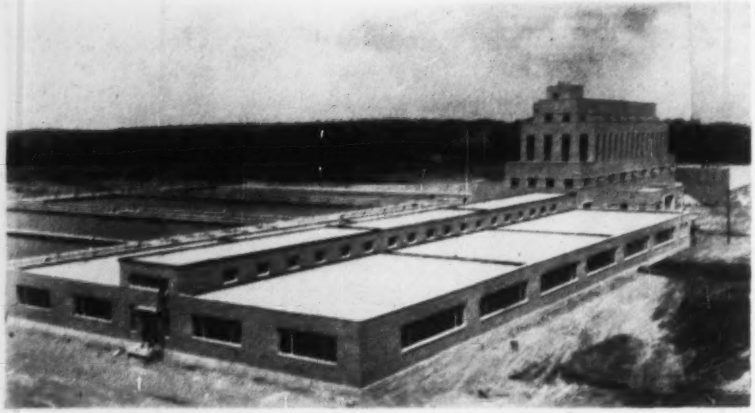
Huge 110 X 1,200-ft Lock No. 19 on the Mississippi river, at Keokuk, Iowa, is right on schedule and should be in operation early next summer. The new $13-million structure will ease river traffic through a 38-ft lift in one hour, as compared to 5-hr delays common with the old lock which was only 360 ft long.

Lock No. 19 will handle a filling flow of 38 million in gal in 10 minutes, with a maximum inflow rate of 15,000 cfs. A bottom lateral system will accommodate both filling and emptying downstream gates are miter type of welded steel construction. Vertical lift gates are being installed in the upstream sills.

Construction began in May 1953 and stands about 85% complete. J. A. Jones Co., Charlotte, N. C., has the major structural work under an $8-million award concrete, nearly 250,000 cu yd of it, was handled by a gantry crane running within the lock. Top photo is a downstream view showing the gantry in position to place upstream lift gates. Filling ports submerged in the upstream sill face can be seen.

Bottom photo shows tapered bottom lateral system.

The entire project, to cost a total of $18 million, is being supervised by the Rock Island District, Corps of Engineers.



More Water for Columbus

Ohio water works scheduled to be in full operation shortly —$28-million system has a 48-mgd capacity

In a few weeks, Columbus, Ohio, will place a new 48-mgd. treatment works in full production, realizing a long-term $28 million water development effort.

The program comprises $20-million Hoover Dam on Big Walnut Creek 12 mi northeast of the city, the $6-million treatment works 3 mi downstream, and $2 million of transmission main from the plant. Hoover Dam can store 20 billion gal of water and provides a safe yield of 60 mgd. The Morse Rod plant can be overloaded to 72 mgd and can pump 90 mgd.

With these new facilities in operation, Columbus' water requirements will be met through 1980. In 1955, 500,000 persons consumed an average 56 mgd, supplied from 81-mgd Scioto River plant and the 11-mgd Nelson Road works.

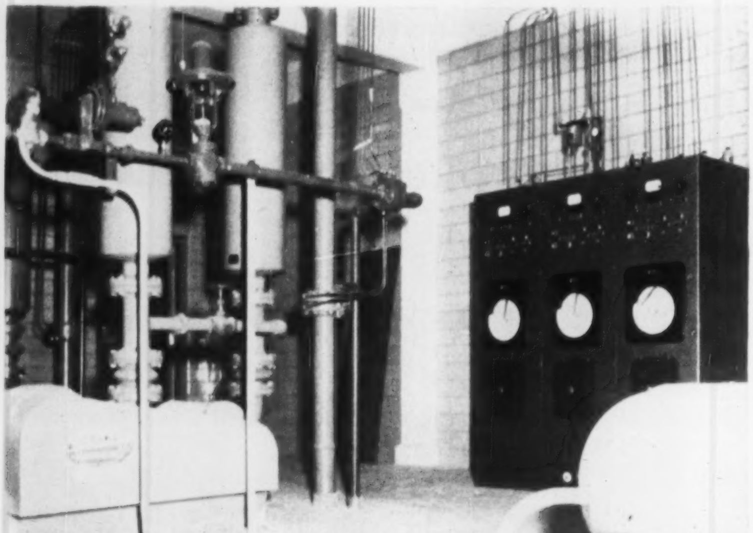
• **Softening equipment**—The new treatment works contains lime-soda ash softening equipment together with the more common complete treatment facilities: flocculation (dry alum) settling and rapid sand filtration. Raw water from Hoover Reservoir flows 3 mi down the creek channel into a 20-million gal pre-settling pool behind a small diversion dam. Low-lift pumps send the water to the chemical building where alum and chlorine (and sometimes copper sulphate and carbon black) are fed. The dry chemicals, alum, lime and soda ash, are handled by gravimetric loss-of-weight feeders, six units for the three chemicals. Each feeder is served by a 300-ton storage bin loaded by conveyor.

After flocculation and settling, water returns to the chemical building to receive lime and soda ash and then is again settled. Carbonation with CO_2, generated by natural gas burning equipment, follows to arrest the precipitation of calcium and magnesium and stabilize the water before it is filtered.

The filter house is equipped with 12 rapid-sand type beds. Filtered water is chlorinated and may receive Calgon for corrosion control. Finished water is stored in a 3-mg clearwell beneath the filters and in two 4.5-mg underground tanks. At any given time 19 mg of water is in process.

• **Plant effectiveness**—The raw water being fed to the Morse Rod plant contains 144 ppm total hardness (as calcium carbonate), 93 ppm of this being non-carbonate hardness. During partial operation of the plant since June, total hardness has been reduced to between 84 and 88 ppm. Raw water also contains 200 bacteria per ml, 25 ppm turbidity, 38 ppm calcium and 12 ppm magnesium.

Thirty acres of sludge lagoons are provided at the plant site, sufficient for only two or three years at full production. When additional storage, or sludge removal, facilities are constructed there is a possibility of installing recalcination equipment to recover lime from the carbonate sludge, according to Paul Laux, superintendent of the Columbus Water Department.



CARBON DIOXIDE control equipment regulates a mixture of natural gas and air that is burned underwater in the last settling basin to arrest hardness precipitation.

Oregon Power Site Explored By Pacific Power & Light

Pacific Power & Light Co. is actively investigating a combination hydro and thermal power site on the Coquille River in Oregon, about 90 mi north of the California border.

The hydro project capability is estimated at 67,500 kw, while there is a possibility of using coal from a nearby field for a 100,000-kw steam-electric generating plant.

PP&L has filed applications with the Oregon Hydroelectric Commission and the Federal Power Commission for preliminary permits to investigate the proposed site, which is at Eden Ridge on the south fork of the Coquille. The company holds prospecting rights for investigation of coal beds on Eden Ridge. Preliminary exploration indicates the fields may hold a reserve of 50,000,000 tons.

Total cost of the two projects could amount to $30-50 million.

Shop, Park or Go

Shopping center, garage and station are planned

Construction of a major suburban railroad station development is scheduled to get under way in New Rochelle, N. Y., early this fall.

The $17-million development—combining an express station and shopping center—will be built under an agreement between the New York, New Haven & Hartford Railroad, the city of New Rochelle, and the New Rochelle Development Corp. Financial backer of the project is Interbora Realty Corp., New York City.

The landscaped structure will house a three-story station plus a one-story shopping center with a two-story department store. It will extend five stories below ground to provide parking space for 5,000 cars. Total amount of floor space will exceed 2,000,000 sq ft, according to tentative plans by Boak & Raad, the architects, and Greenhut & Taffel, consulting engineers, both of New York City.

In addition, the terminal center is expected to include an office building, a hotel, a swimming pool, and helicopter service to airports.

The tri-party agreement calls for the New Haven Railroad to sell the freight yard and 60-year-old depot now located on the 424,000 sq ft site to the development company for $1 million. The new station, designed to include offices, will contain 4,000 to 5,000 sq ft of space and will be leased to the railroad for 299 years.

The New Haven's search for a rail-hub site to ease New York City's traffic load has been under way for a year. New Rochelle, which offers quick access to thruways and parkways, is just 17 mi from midtown Manhattan.

By rearranging and expanding its schedule, the railroad would make New Rochelle a regular "focal point" express stop. To increase commuter service into New York City, 60 main-line express trains a day into Grand Central and 17 expresses into Pennsylvania Station would stop in New Rochelle for the first time.

New Haven officials believe that since state thruways provide such swift travel from Hudson Valley communities, many long-distance travelers will use the new depot instead of going into New York City. For these travelers, the New Rochelle facility would supplant Grand Central and Pennsylvania Station in furnishing service to Maine, Florida, Washington, D. C., and the Middle West.

Meanwhile, New Rochelle has an $8.7-million urban redevelopment plan in the works to tie-in with the suburban station and shopping center. Under a recent $70,000 federal grant for planning redevelopment and housing in substandard areas, the city is studying a mile of old buildings on 55 acres north of the new station's site. This area would be turned into a commercial, office and civic center.

Engineers Dropped

Penn pike consultants are removed in surprise move

In an action that took many observers by surprise, despite the atmosphere of political squabbling that has surrounded its actions for some months, the Pennsylvania Turnpike Commission last week announced it had canceled all engineering contracts with the J. E. Greiner Co., of Baltimore.

The Greiner firm has been associated with the turnpike since its inception in 1937. As of the date of the commission's action (Aug. 28) the firm held at least three separate contracts—two covering engineer work on construction of extensions (the Northeastern and Northwestern), and a third for servicing the whole turnpike system by furnishing engineering advice. A further provision of this latter contract was compliance with certain requirements of bond indentures dated 1948 and 1952, which call for appointment of a consulting engineer.

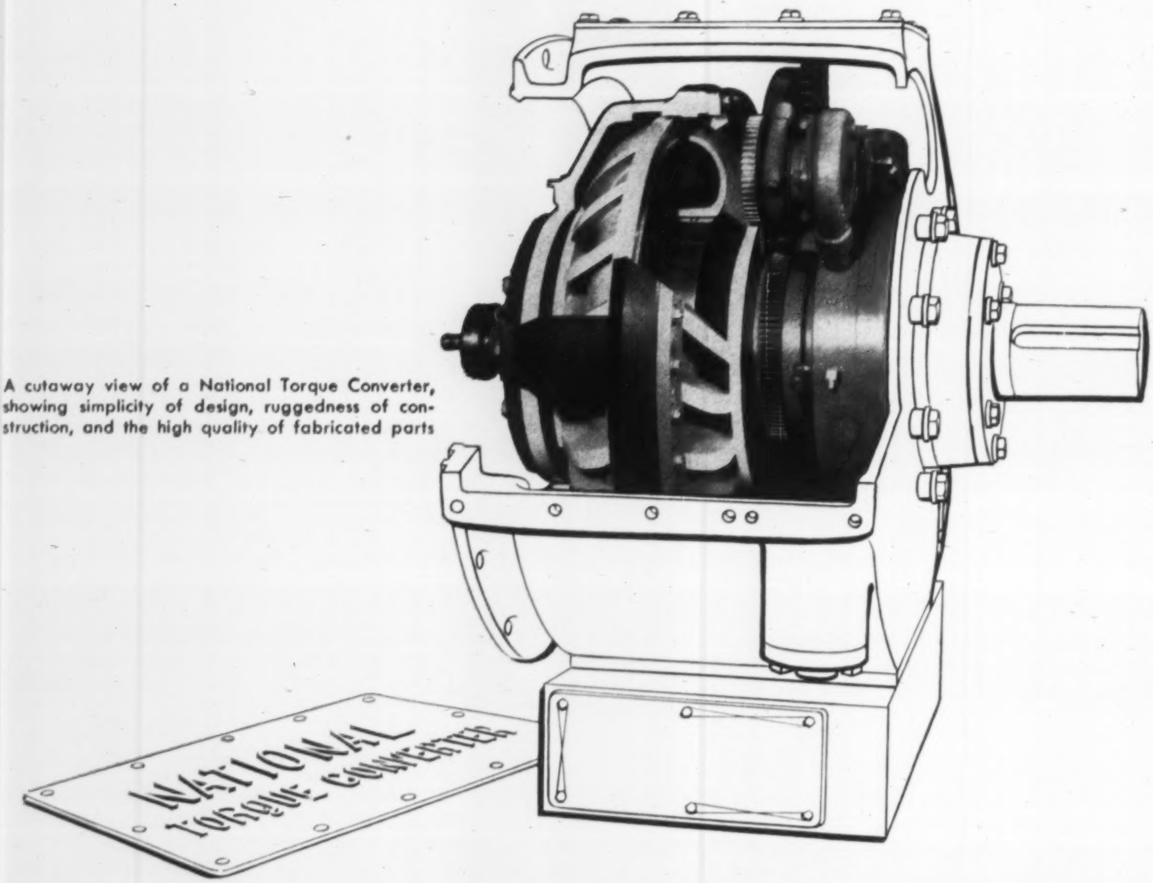
Late last week it was announced that the Rochester, Pa., firm of Michael Baker, Inc., had been engaged in Greiner's place.

No official comment on the announcement was available last week either from the consulting engineer or from the commission—beyond the general news announcement. However, close observers connected the action to a running battle between the commission and Gov. George Leader, which has in recent weeks produced a ruling from the State Attorney General that makes it appear that many commission actions over the past years have been illegal.

Record Refinery Reaches Milestone

Construction of Tidewater Oil Co.'s giant new refinery near Wilmington, Del., this week passed the halfway mark. More than 7,000 workers are now employed on the big project, which when completed will have the world's largest initial capacity—130,000 bbl a day. The first of the major refining units is expected to start producing this fall, and Tidewater officials anticipate large-scale production by the end of the year.

Nearing completion are four of the plant's chief manufacturing units. Two of these are the world's largest. The crude unit is 80% completed, the fluid coker about 50%. The complex 102,000-bbl per day catalytic cracker is 75% complete. Almost all the huge storage tanks are finished. These have a total capacity of 7,000,000 bbl.



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A copy of Bulletin No. 468, descriptive of National Torque Converters, is available on request.

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INDUSTRIAL PRODUCTS DIVISION
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Pace-setters in the progress of
industrial power transmission

States Battle to Get Site For Dam Construction Town

A bitter battle between the states of Utah and Arizona is being waged in an effort by each to locate the townsite which will be built to house workmen who will construct the giant Glen Canyon Dam on the Colorado River.

While the final choice of the site will be made by the Bureau of Reclamation, the Congressional delegations of both states and citizens as well are reported to be besieging the bureau with demands that the town be built on one side of the river or the other.

Actually the town will be located in Arizona, but Utah wants the townsite on the site of the river closest to it. Utah is already building a good road into the damsite in an effort to get first consideration.

The battle between the two states is reminiscent of the one which raged before the construction of Hoover Dam. The Nevada side was selected in that case because the Arizona terrain near Black Canyon was not suited to the establishment of a townsite.

It appears that the same situation prevails at Glen Canyon and that Arizonans will lose out in this dispute just as they did at Hoover. However, Arizona can seek consolation in the fact that the dam itself is located 13 mi below the Utah-Arizona border.

State Collects for Fish Egg Damage Caused by Polluter

In the first case of its kind in California, the Ukiah Pine Lumber Co. paid the state a $1,500 cash settlement for steelhead trout eggs and broodstock destroyed by polluted water from the firm's log pond. The negotiations for damage followed the conviction of an officer of the company to a pollution charge. A fine of $150 was paid. The California Department of Fish and Game said never before has the state obtained damages for the destruction of fish by industrial pollution.

Penn Pike Safety Improved By Control of House Trailers

Tightened regulations on towing of house trailers have improved safety records on the Pennsylvania Turnpike, a commission announcement said last week.

In effect for little more than a month, the new rules prohibit use of the tollroad by house trailers on weekends, at night, and during periods of bad weather or poor road conditions. House trailers are now classified as commercial vehicles and must stay within the 50 mph truck speed limit.

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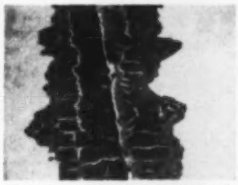
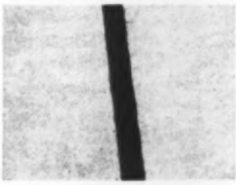


ORDINARY MATERIALS



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KOH-I-NOOR PENCIL COMPANY, Inc.
BLOOMSBURY NEW JERSEY

Electronic System

Computer program almost ready for Missouri River

The Missouri River Division of the Corps of Engineers has almost completed an electronic computer program for calculating optimum yearly river regulation and power generation schedules for the Missouri River reservoir system. Work on the program has progressed to the final "de-bugging" procedures.

As explained at the recent annual meeting of ASCE's Hydraulics Division at the University of Wisconsin by R. J. Pafford, head hydraulic engineer of the Missouri River Division, the primary objective of the computer research is development of a set of instructions for the computer which can automatically analyze inflow estimates and functional water supply and power requirements for each basic set of assumptions. If this can't be attained, the electronic computer can be used in handling the large volume of arithmetic involved in the trial and adjustment procedure now in use.

However, it is expected that the primary objective will be achieved. This would save several thousand engineering man-hours each year, but more important is that the computer can produce more refined answers. Pafford pointed out that an overall improvement in performance of only 2% is worth more than $1 million a year on the Missouri River system, now consisting of four reservoirs (Fort Peck, Garrison, Fort Randall and Gavins Point).

Oahe Dam, scheduled for closure in 1958, and Big Bend Dam will complete the main system.

Pafford is of the opinion that the pioneering computer application on the Missouri River will be of great value for scheduling operations of other multipurpose reservoir systems, particularly where power generation is an important factor.

WW II Blimp Hangars Get New Roof

Two of the biggest timber buildings in the world are now bright and tight, newly resurfaced with nearly a million square feet of corrugated aluminum and neoprene-base roofing material. Built during World War II at Lakehurst, N. J. (ENR Apr. 22, 1943, p.62), in accordance with a design developed by the Bureau of Yards and Docks (ENR Oct. 22, 1942, p. 110), the huge parabolic-arched blimp hangers tower 175 ft in the air. Each cover an area 1,058x296 ft. Primary frame members are wood trussed arches spanning 246 ft.

After Wigton-Abbott Corp., engineers of Plainfield, N. J., had completed studies and made recommendations to the Navy on alleviation of recurring troubles with the roofing, Elwin G. Smith & Co., Pittsburgh contractors, began the job by stripping off the old built-up roofing and replacing wood sheathing that had rotted because of leaks. Next they fastened 30-lb asphalt-impregnated asbestos felt to the wood decking and, finally, applied the outside surface. Most of the area was sheathed in 0.032-ga corrugated aluminum, lag-screwed to the wood.

A monolithic neoprene covering was used, however, on a low-pitch 50-ft-wide strip, which includes a 14-ft-wide monitor along the top of each of the hangars.

This material was also applied on the box girders supporting the doors and on the warped surface connecting the girders to the top of the arched roof.

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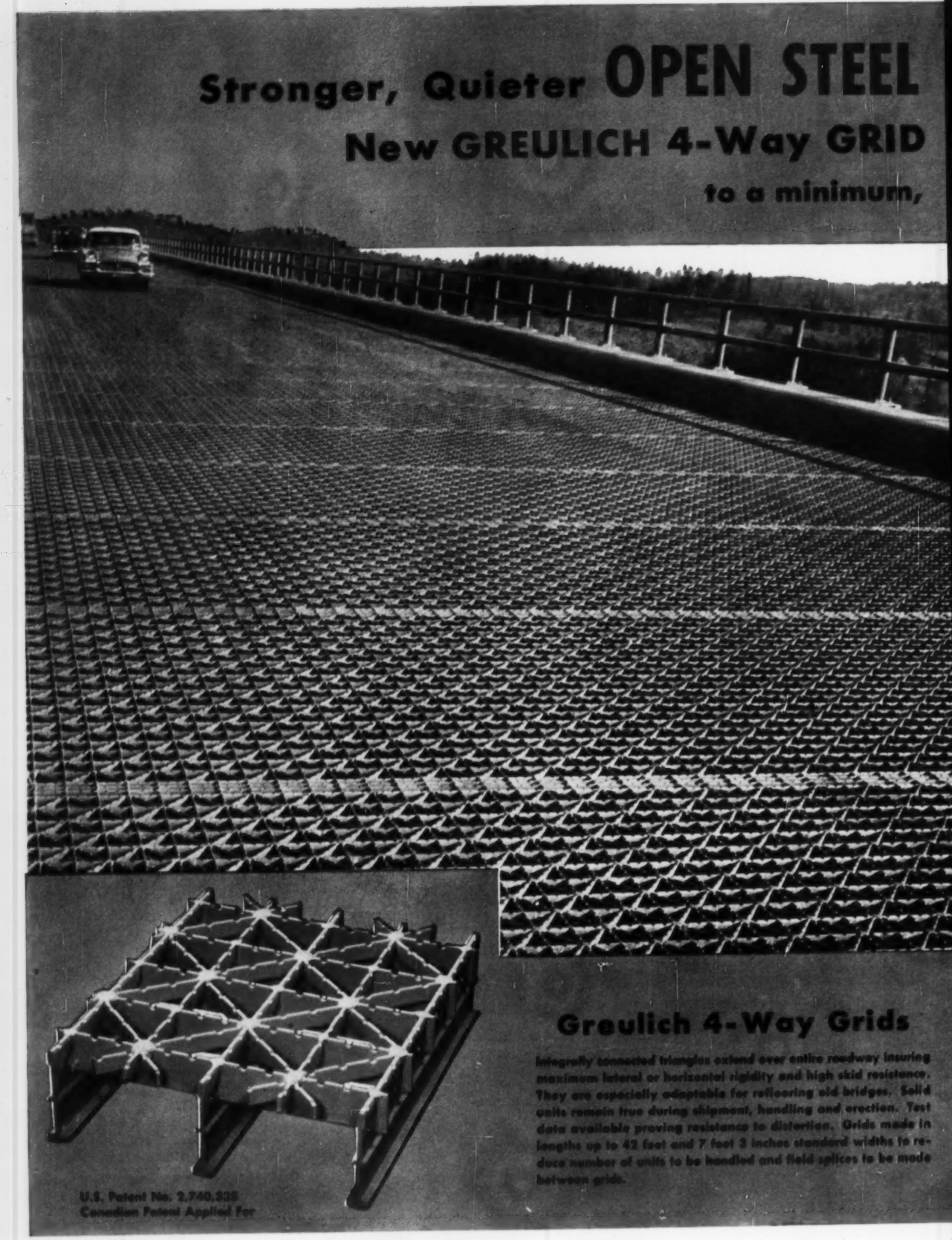

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BRIDGE FLOORS *with* 20% Fewer Field Welds

from KERRIGAN holds installation and handling costs and provides a skid-resistant flat, serrated surface

The new Lanier Bridge, constructed by Bristol Steel and Iron Works for the U.S. Corps of Engineers, and built in conjunction with Buford Dam near Gainesville, Georgia, is floored with Kerrigan Iron Works' new GREULICH 4-WAY GRID. The Greulich 4-way design permits wider spacing of main bearing beams to 7½ inches, thus reducing the number of field welds necessary to secure flooring to supporting beams. Units are fabricated in panels 7 ft. 3 inches wide to hold handling costs to a minimum, and still permit hauling on ordinary flat bed trucks.

The 4-way grid provides a flat single plane serrated surface—gives a smooth ride and reduces tire hum to a minimum. Yet, due to triangular opening in design and scientifically located serrations in the top surface, it provides greater skid resistance. The solid, one-piece unit is easy to erect and is self cleaning. The open surface does not hold snow, dirt and water.

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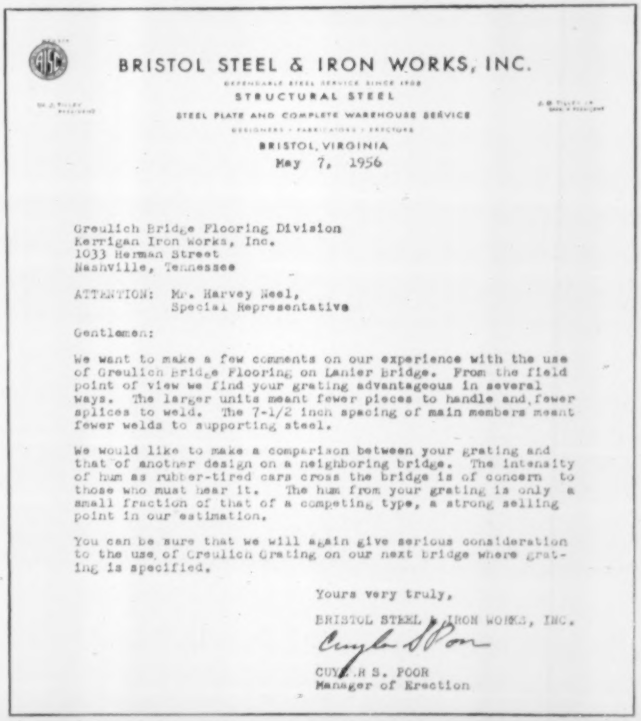

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May 7, 1956

Greulich Bridge Flooring Division
Kerrigan Iron Works, Inc.
1033 Herman Street
Nashville, Tennessee

ATTENTION: Mr. Harvey Neel,
Special Representative

Gentlemen:

We want to make a few comments on our experience with the use of Greulich Bridge Flooring on Lanier Bridge. From the field point of view we find your grating advantageous in several ways. The larger units meant fewer pieces to handle and fewer splices to weld. The 7-1/2 inch spacing of main members meant fewer welds to supporting steel.

We would like to make a comparison between your grating and that of another design on a neighboring bridge. The intensity of hum as rubber-tired cars cross the bridge is of concern to those who must hear it. The hum from your grating is only a small fraction of that of a competing type, a strong selling point in our estimation.

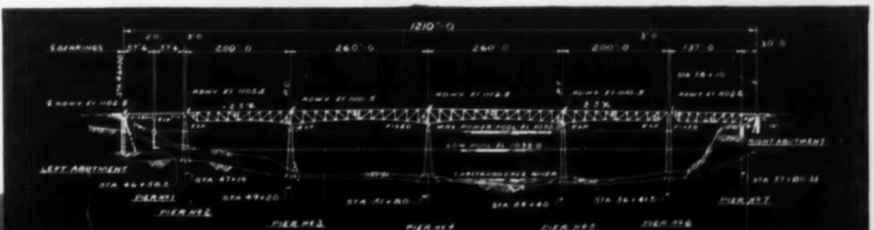
You can be sure that we will again give serious consideration to the use of Greulich Grating on our next bridge where grating is specified.

Yours very truly,

BRISTOL STEEL & IRON WORKS, INC.

Cuyler S Poor

CUYLER S. POOR
Manager of Erection



GREULICH
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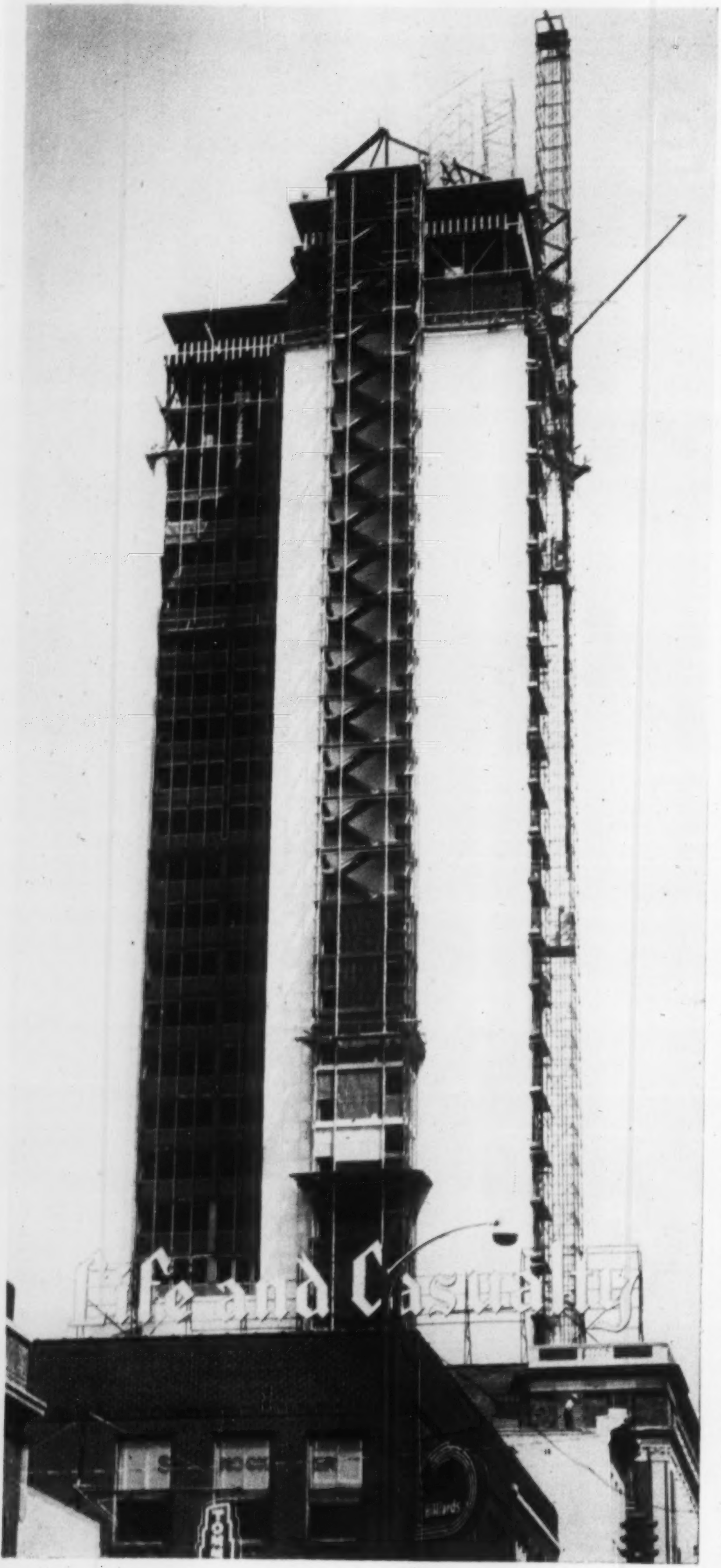
Division

KERRIGAN IRON WORKS, Inc.

Harvey F. Neel, Manager, Bridge Flooring Division, Nashville, Tenn.
General Sales Office: 274 Madison Avenue, New York City



◀ **L-shaped office building is unusually slim for its 420-ft height.**

Its steel frame had to be braced against wind by vertical trusses. ▶

In Nashville Skyscraper . . .

Vertical Trusses

Ross H. Bryan
Consulting Engineer
Nashville, Tenn.

Wind bracing takes an unusual form in the structural steel frame of the 30-story Life and Casualty Insurance Co. office building, Nashville, Tenn. Lateral loads are transmitted to the ground through vertical cantilever trusses.

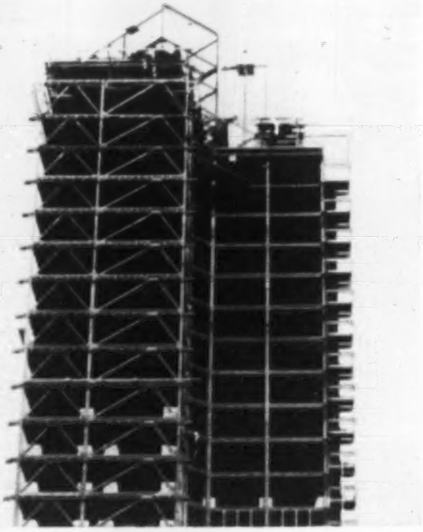
This type of construction is generally avoided for tall commercial structures because the diagonal members of the trusses may obstruct windows. Instead, girders usually are rigidly connected to columns to form rigid frames capable of resisting wind loads.

In the L & C building, however, conventional beam-to-column framing would not keep deflection of the tower to the desired minimum, because of the large ratio of height to width and because there are no interior columns above the ninth floor.

• **Connections bolted**—The structural frame of the building is connected with high-strength bolts. All main members are designed for rigid or semi-rigid connections.

The design of the wind bracing for the steel frame had to take into account many elements that ordinarily would be considered of only architectural concern:

• Floors consist of cellular steel decking welded to the floor beams and topped with lightweight concrete fill.

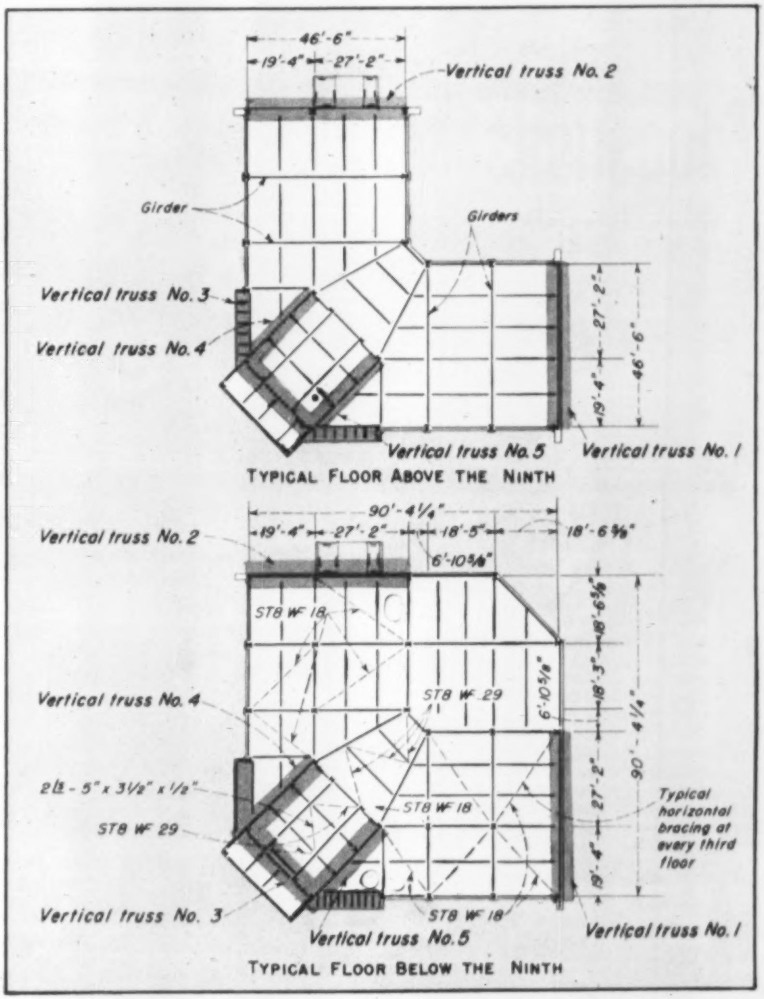


es Resist Wind Load

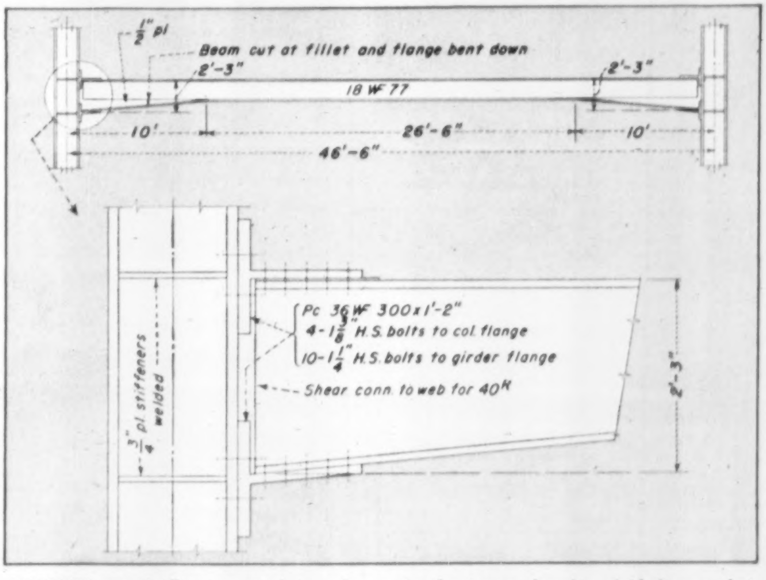
- Up to the 9th floor, the structure in plan is about 90 ft. square; above, it is L-shaped.
- On two sides of the building, the only openings are for corridor windows and a fire-escape door. Walls are faced with stone and backed up with structural clay tile.
- The other sides have extensive window areas, with aluminum spandrels below the windows. (From the 3rd to the 30th floor, vertical aluminum fins project 4 ft in front of the windows to protect them from the sun. Since the building is air conditioned, the windows are double-glazed, the outer pane being heat-absorbing glass.)
- The interior will be subdivided with movable steel partitions.
- Enclosed in masonry, elevators, stairs and pipe space are located at one corner of the building along a diagonal. (The structure will be serviced by six electronically operated elevators. A low-rise bank of three cars will operate at 800 fpm from the 1st to 17th floors, while the high-rise cars will travel at 1,000 fpm.)

Height from basement to penthouse roof is 420 ft. Width of the L-shaped tower is only 47 ft. It is apparent that such a ratio of height to width would produce large wind moments in the beams and columns and excessive distortions in the beam-and-column panels unless very deep wind connections were used.

- **Bracing arrangement**–As a result, vertical cantilever trusses were selected to resist the wind shears. Five


46'-6"
19'-4"
27'-2"
Vertical truss No. 2
Girder
Girders
Vertical truss No. 3
Vertical truss No. 4
27'-2"
46'-6"
19'-4"
Vertical truss No. 5
Vertical truss No. 1
TYPICAL FLOOR ABOVE THE NINTH
90'-4 1/4"
Vertical truss No. 2
19'-4"
27'-2"
18'-5"
18'-6 5/8"
6'-10 5/8"
ST8 WF 18
18'-6 5/8"
Vertical truss No. 4
ST8 WF 29
6'-10 5/8"
18'-3"
2 Ls - 5" x 3 1/2" x 1/2"
ST8 WF 18
27'-2"
90'-4 1/4"
ST8 WF 29
Typical horizontal bracing at every third floor
19'-4"
Vertical truss No. 3
ST8 WF 18
Vertical truss No. 5
Vertical truss No. 1
TYPICAL FLOOR BELOW THE NINTH

FLOOR PLANS SHOW how vertical wind trusses are placed. To insure unity of action, horizontal bracing (dash lines) is incorporated at every third floor.


1/2" pl
Beam cut at fillet and flange bent down
2'-3"
2'-3"
18 WF 77
10'
26'-6"
10'
46'-6"
Pc 36 WF 300 x 1'-2"
4-1 3/8" H.S. bolts to col. flange
10-1 1/4" H.S. bolts to girder flange
Shear conn. to web for 40K
3/4" pl. stiffeners welded
2'-3"

GIRDERS are rigidly connected to columns in the tower, forming rigid frames that span the full width of the building.

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needs bracing

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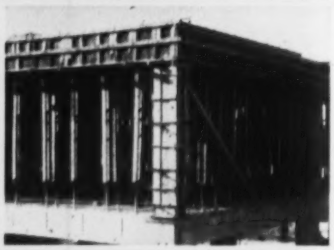

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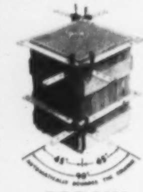

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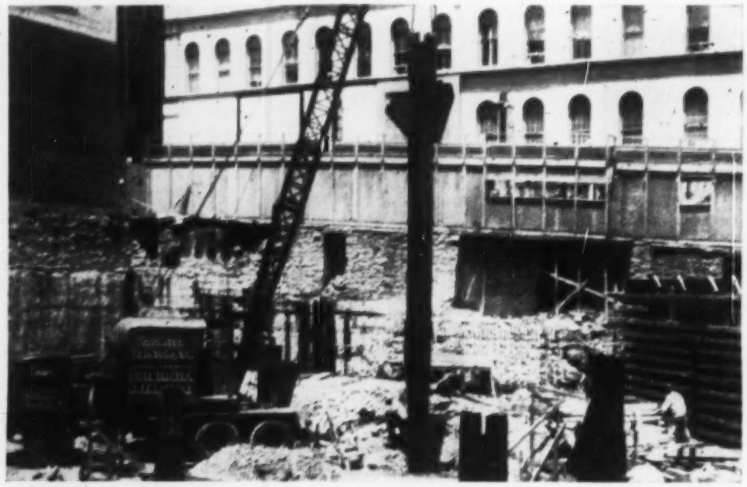
. . . Skyscrapers columns tied down



HOLES were drilled in bedrock to receive the anchor columns.

trusses are used, their location determined to a large extent by the desirability of placing them within walls where few or no openings occur.

Two of the trusses are in the exterior walls with corridor windows and fire escape. The other three are along the sides and rear of the elevator core. (See framing plans.) They are designed to work together. But the design was complicated by the necessity of bending the framing around openings. On several floors, diagonal members had to be eliminated from one truss.

Unity of action of the five trusses is enforced by means of a horizontal bracing system in every third floor. This bracing system is designed to transmit the total wind shears of three stories, even though some distribution of these shears could reasonably be assumed to be taken by the intermediate floors, which are stiffened by the cellular steel decking.

• Rigid-frame tower—Adding to the problem of designing for wind loads is the lack of columns in the interior above the ninth floor. (The steel fabricator estimates the cost of omitting the interior columns is about $70,000, which the owner thought was worthwhile because of the flexibility gained in subdividing space without obstructions.) Tower floors are supported on rigid frames spanning the full width of the building. Girders are haunched 18-in. wide-flange beams increased in depth at the columns to 27 in. (see sketch). Exterior columns for these frames are cover-plated 18 WF 114. The rigid connections of these girders and columns were made with high-strength bolts.

BOTTOM COLUMNS are wrapped with spiral reinforcement and encased in concrete anchorages to resist uplift from wind loads on the building.

• Columns tied down—As might be expected, considerable uplift was encountered in designing the wind trusses. Main chord members have an uplift of 800 to 1,700 kips under an assumed condition of dead load plus wind at 10 to 32 psf (Southern Building Code).

To resist the uplift in these chords, the basement columns were extended into 3-ft-dia holes drilled into bedrock. Depth of embedment varies from 20 to 25 ft. After the anchorage columns, wrapped with a spiral of ½-in.-dia steel on a 4-in. pitch, were placed, the holes were filled with 5,000-psi concrete.

Edwin A. Keeble Associates were the architects. Ross H. Bryan was the structural engineer. J. A. Jones Construction Co. was the general contractor, and steel was fabricated and erected by Bethlehem Steel Co.

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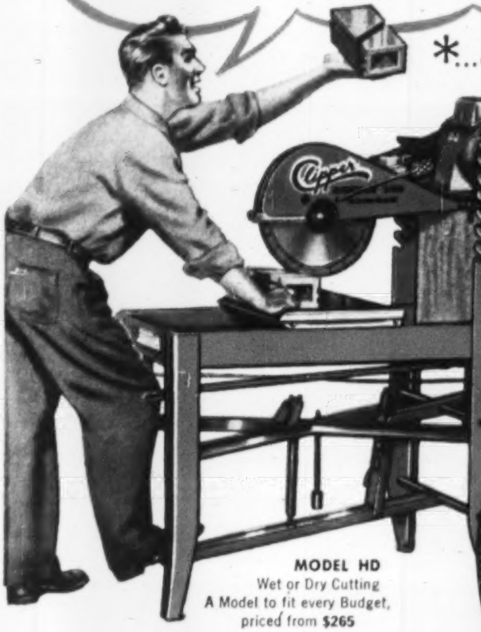

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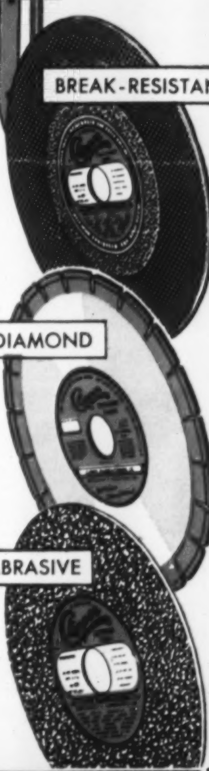

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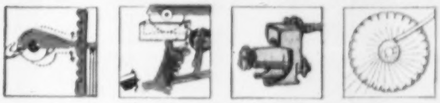

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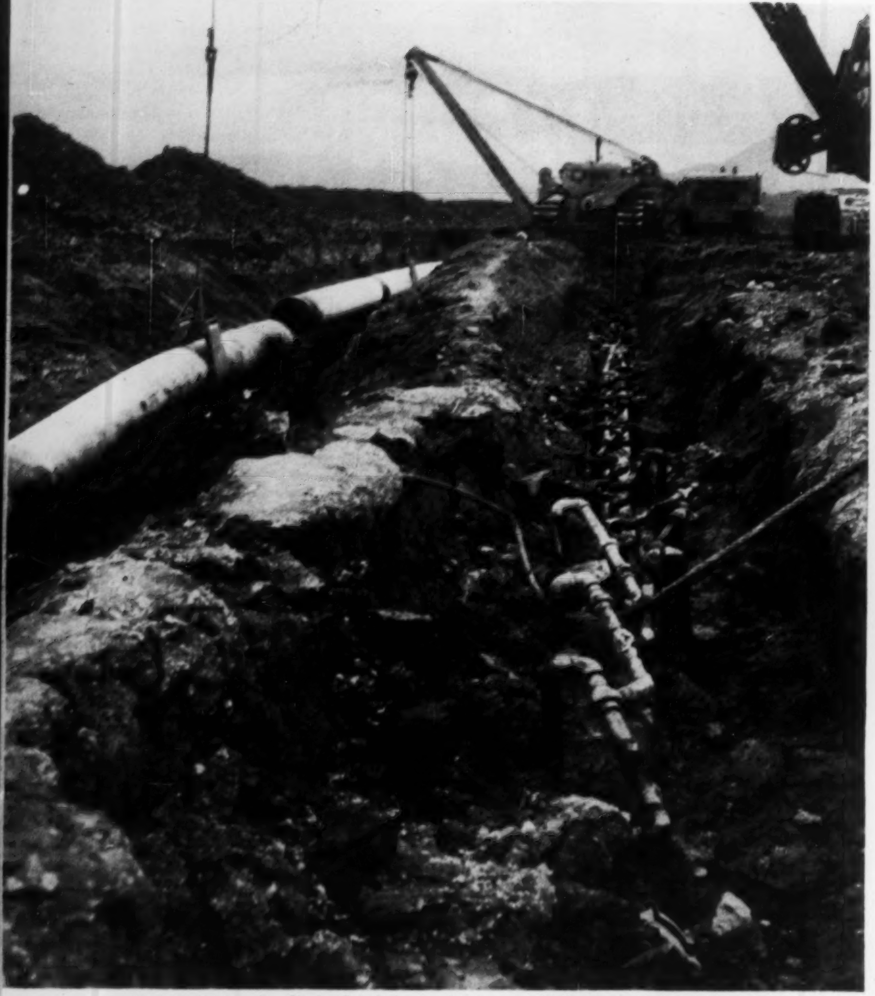

PIPE IS LAID in ditch dried by wellpoints. Bad conditions here required sinking wellpoint header and extra ditch width.

WELLPOINTS ARE JETTED into place. Standin

SWAMP WEIGHT weighing 6,200 lb is placed over pipe so it won't be floated out of position by high ground water.

Wellpoints

For a while this summer a high water table threatened to bog down 25 miles of a 650-mi pipeline job in British Columbia. But a wellpoint system tailored to the fast-moving needs of a pipeline spread saved the day. The line was actually finished a couple of weeks ahead of schedule.

The line is the 30-in., $153-million Westcoast Transmission Co. natural gas line from the Peace River district in northern British Columbia to the U. S. border, 60 miles east of Vancouver. With a maximum capacity of 660,000,000 cu ft per day, the line will connect with distribution systems in the U. S.

Westcoast's agent for the entire pipeline is Canadian Bechtel, Ltd., which is supervising four contractors: Dutton-Williams Bros.–120 miles, Bechtel Construction Division–210 miles; Conyes Construction Corp.–210 miles; and Mannix Ltd.–110 miles. It was in the last section (nearest the U. S. border) of the Mannix contract that the high water was encountered.

Mannix ran into these problems on an innocent-looking stretch of fertile delta: (1) It used to be the bed of Sumas Lake. The land was reclaimed 30 years ago and is now diked and drained by a pumping system into the Fraser River; (2) Several sectors are irrigated subterraneously with most water coming from the

water is due to jetting operation together with high groundwater level.

Bail Out a Pipeline Job

Fraser River; (3) The level of the water table still rises to within a foot of the land surface, particularly during the Fraser freshet period (which extends through the month of June); (4) Pockets of quicksand occur throughout the whole prairie.

• **Water troubles**—The contractor actually had moved a complete pipe-lining spread into the area last fall, and about six miles of line was welded up when the high water level and winter weather forced shutdown. In some cases, to get and keep the necessary 6 ft of depth, excavations over 50 ft in width had to be made. At road crossings where more depth was necessary it was impossible to get a dry trench.

An unsuccessful attempt was made to drain the water by occasional large wells. And sheeting the trench—which did work where tried—was ruled out as too expensive over the entire 25-mi stretch.

Wellpoints provided the answer for draining the predominantly sandy subsurface formations.

The Mannix spread includes more than $2.5 million worth of construction equipment, geared for a ½-mi-per-day operation—and this equipment had to be kept moving. Accordingly, when work was resumed this spring enough wellpoint equipment was brought to the job so that full production could be reached when things went smoothly. And the rate of placing did average from 1,500 to 2,000 ft daily; on one particular day, 3,300 ft of pipe was laid in wellpointed trench.

• **Laying the pipe**—Pipe-laying starts with stringing out the 40-ft-long, 2½-ton sections, mobile cranes loading the stringing trucks and side boom-tractors doing the unloading. The setting-up crew spaces the pipe out and puts it on skids so that a bending machine can shape it to the curvature of the ground. This operation is followed by welders who work against an internal lineup clamp pulled through the pipe; next a cleaning machine takes the rust off and primes, then a coating and wrapping

PIPE IS COATED with protective membrane. Wellpoints have not yet unwatered the ditch at the left.

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push it under streets, roads, tracks, lawns with a timesaving

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Two feet per minute average pushing time

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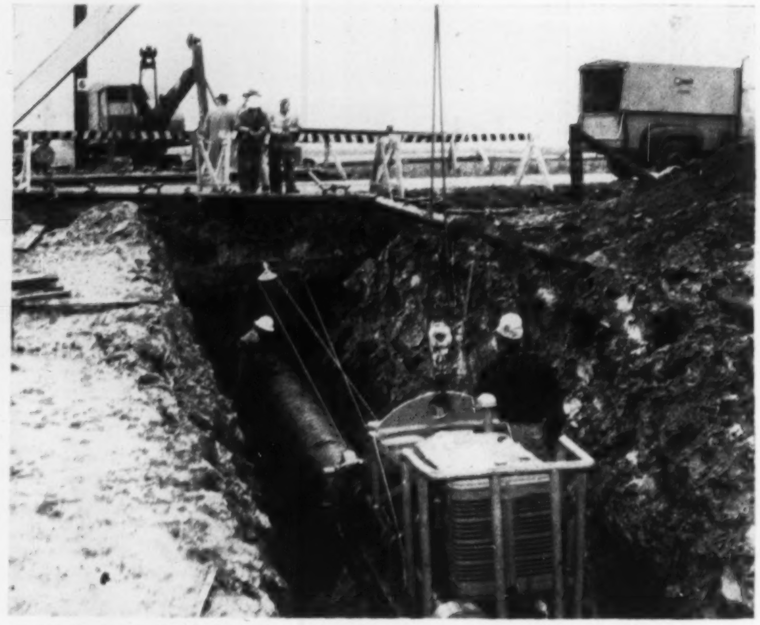
. . . Wellpoints for 25 miles of line



HIGHWAY CROSSING requires deeper excavation and additional wellpoints. Note header across trench by road.

machine readies the pipe for placing in the ditch.

Meanwhile – normally – a ditching machine makes the necessary 6- to 7-ft excavation. The machine has a 40-in. wheel with 4-in. offset adapters and 10-in. slopers. Extra depth, when necessary, and removal of cave-ins is looked after by back hoes, clamshells or draglines.

After the coating is electrically tested, side-boom tractors place the pipe in the ditch. Once in position, in areas where there is a possibility of high water, 6,200-lb, precast-concrete swamp weights are placed at intervals on the pipeline. Finally, the ditch is backfilled and the operation is completed.

• Wellpoints added—For the 25 miles of line across the Sumas Prairie, Mannix had to superimpose an extensive wellpoint operation on its normal procedures. The wellpoint equipment was supplied by the John W. Stang Corp., handled by Mannix crews under supervision of a Stang representative.

Some 6,000 ft of 8-in.-dia wellpoint header was used. The normal operation was to install about 2,000 ft of header to permit the pipe layers to work on that much line. Meanwhile, another 2,000 ft of wellpoints would be installed ahead of the pipe laying gang while the third 2,000 ft was being removed behind them. Most of the moving of the wellpoint equipment was done at night, to minimize interference and to permit use of some of the pipe laying equipment. The actual jetting in of the wellpoints and making the connections was a daytime operation.

The 8-in. header pipe was welded into 600-ft lengths. Moving the lengths was handled by two side-boom tractors.

Normal conditions called for 3-ft-long, 1½-in.-dia wellpoints on 13-ft-long riser pipes at 6-ft centers. But at road crossings, where more depth was required, 16-ft risers were used—in extreme cases risers were as much as 25 ft long. Wellpoint spacing was 4 ft, but sometimes as close as 2 ft. Extra 6-in. header was on the job so that the dewatering equipment could work both sides of the ditch where necessary.

Total wellpoint equipment, in addition to the 6,000 ft of 8-in. header included: sixteen 8-in. Stang vacuum pumps with 1,200 gpm capacity; three 4-in. jet pumps; 954 ft of 6-in. header for road crossings; 2,000 ft of 8-in. discharge pipe; 1,100 ft of 12-ft discharge pipe; 1,150 ft of 10-in. discharge pipe; 1,500 wellpoints; and 20,000 ft of 1½-in. riser pipe.

A Mannix spokesman puts the cost of wellpointing at about $3 a foot of trench. But he commented that without it the job might still be bogged down on the Sumas Prairie. The important point is that sufficient wellpoint equipment was provided so that pipelaying production could be maintained.

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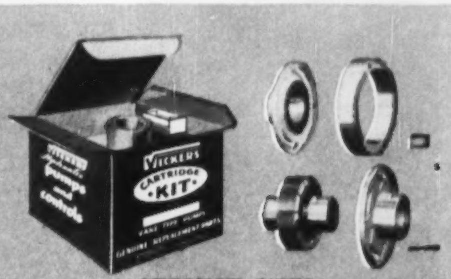

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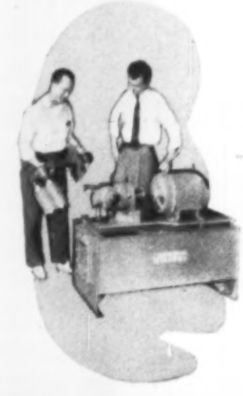

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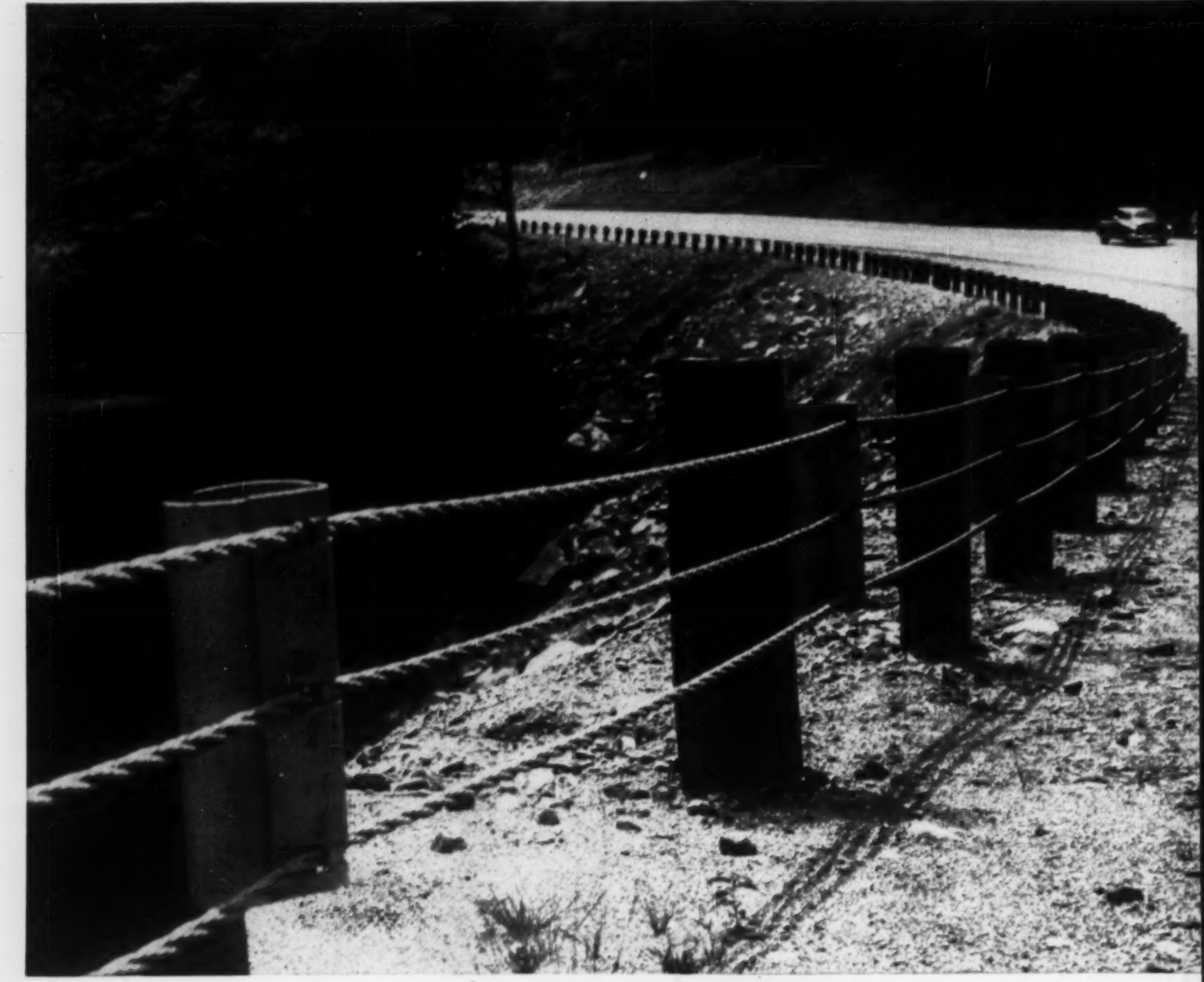

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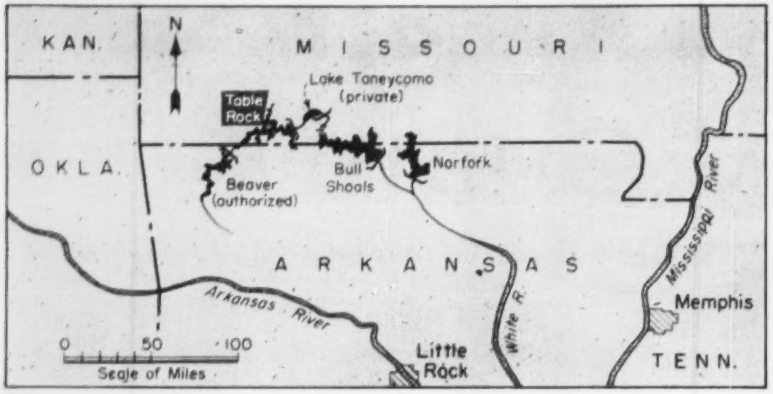


High in the Ozarks . . .

Dambuilders can get a look at the first 7½-ft concrete lifts in the U. S., cableway control via TV and precooling of aggregate in storage silos as . . .

Table Rock Constructors Try a Host o

First use of 7½-ft concrete lifts in the U. S., as contrasted to the usual 5 ft, is proving successful at Table Rock Dam on the White River in Missouri. With more than 700,000 cu yd of mass concrete in place—of a total 1,200,000 cu yd—the contractor's heavy investment in special box-truss hinged cantilever forms is paying off in terms of a third less form handling. However, achievement of corresponding cost savings will have to await re-use of the expensive structural steel forms sections at another job.

To keep pace with the formwork, the contractor—a six-firm joint venture headed by Morrison-Knudsen Co. and Utah Construction Co.—is employing closed-circuit television for faster cableway control and is testing a hydraulic concrete bucket opening system which can be triggered at a safe distance with a hooked-end pole.

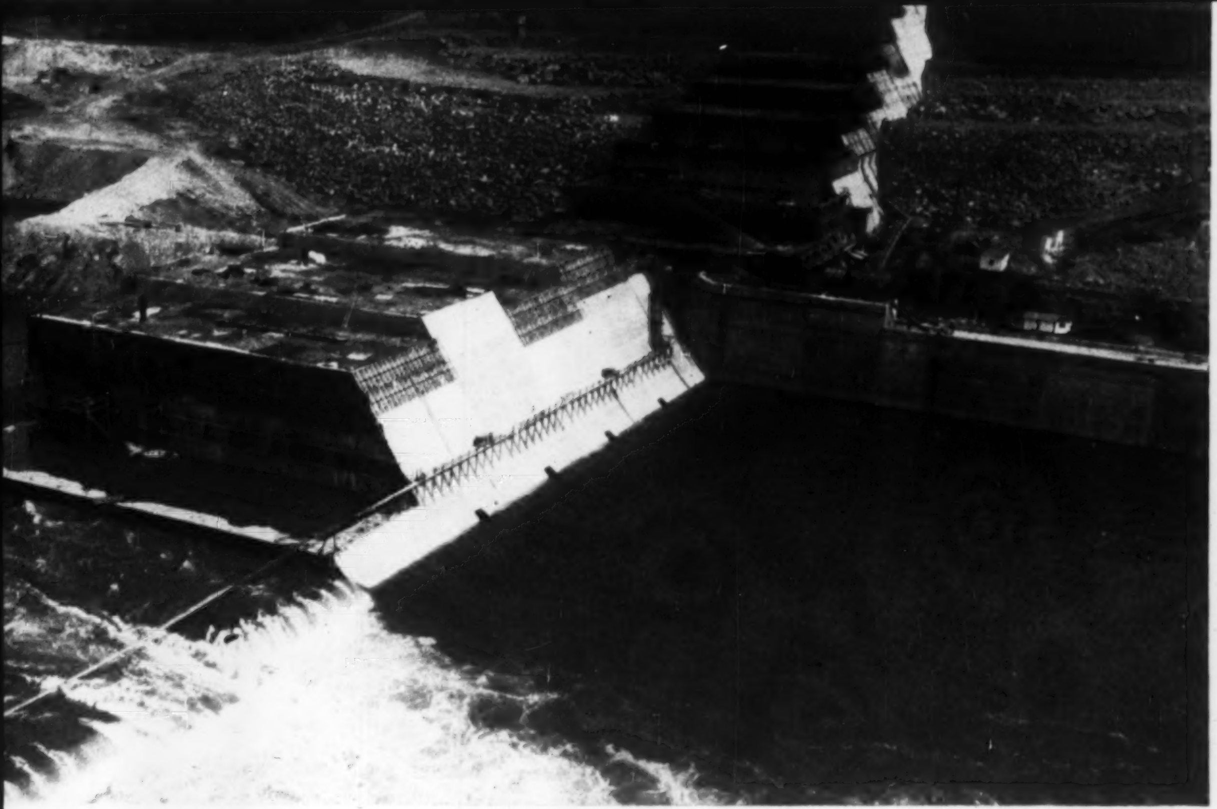
Finally, to aid a conventional refrigeration system (aggregate cooling in batch bins and cold water or flaked ice in the mix) in producing 50F concrete, aggregates are pre-cooled up to 30 deg by blowing cold air through the storage silos.

Spring flood caused little damage, forced filling of penstock area at right to equalize pressure on cofferdam. Photo at top of page was taken two weeks earlier.

Table Rock Dam is to be composed of a 1,602-ft concrete gravity section incorporating gated spillway, intake and short non-overflow abutment sections, and adjacent earth embankments totaling 4,821 ft in length. Maximum height in the concrete portion is 261 ft. Running the full length of the spillway is a 251-ft stilling basin with a 7½-ft-high end sill.

- **River diversion**—Construction of the dam began in November 1954, and first mass concrete was placed in May 1955. The contractor chose a three-step diversion sequence. First the area north of monolith 16 (see drawing) was kept in the dry while foundations for monoliths 10 to 15 and the north training wall were placed, during the 1955 flood period.

Then the White River was sent between the north training wall and north bank over monoliths 10 to 15,



New Ideas

while the contractor built up the spillway monoliths and the stilling basin.

The third and final river movement was completed in February and involved turning the river back to the south bank to flow over monolith 22, kept low at El 712.5, while work continued on the penstock monoliths.

The north training wall supplemented rock-fill cofferdams during the final two diversion sequences.

• High lifts—The Corps of Engineers has specified 7½-ft concrete lifts as an alternate to 5-ft lifts since 1953, but Table Rock is the first major project where they have been used.

Prior to construction of Hoover Dam on the Colorado River in the early 1930s, height of mass concrete lifts varied between 4 and 6 ft for the most part. Since Hoover, however, the major dambuilding agencies—Corps of Engineers, Bureau of Reclamation and TVA—and form manufacturers seem to have made 5-ft lifts almost standard in the U.S.

Lifts higher than even 7½ ft are not uncommon in other parts of the world: At Switzerland's Grand Dixence Dam concrete is placed in 10½-ft lifts (ENR May 24, p. 34); Canadian constructors place mass concrete continuously in lifts as high as 50 ft.

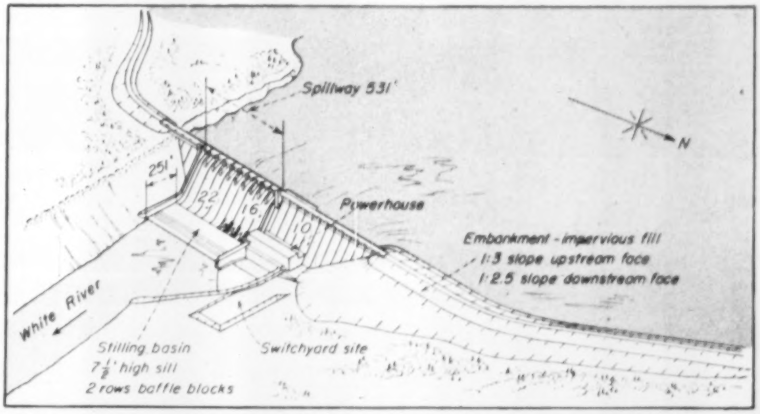
• Special forms—To cope with the 7½-ft lifts, the contractor developed an angle-member, box-truss cantilever form that offers considerably more resistance to deflection than do conventional cantilever forms. In addition, the box truss is hinged at the middle so that top half can be pivoted out of the way and concrete discharged as close as possible to sloping faces. When concrete is built up halfway in a lift, the half panel is pivoted back to normal position.

The box forms are attached to the sloping faces by means of anchor bolts. A 7½-ft lift is placed in five layers. After 36 hours, the form on the lift below the fresh one can be leapfrogged and anchored to the fresh concrete for a new pour without affecting anchoring of the form for the fresh concrete.

On less critical faces, enlarged conventional cantilever forms are employed.

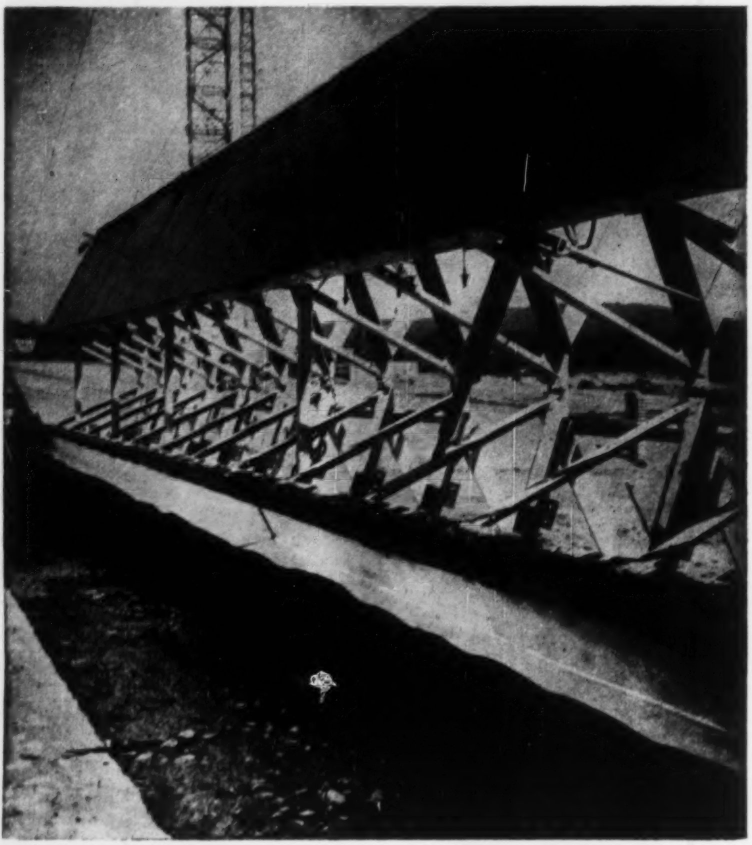
• Concrete placement—Most of the monolith concrete is placed from an 8-cu-yd bucket riding a 2,600-ft main cableway equipped with stationary head tower and traveling tail tower. The cableway features simultaneous operation of carriage and bucket, at respective maximum speeds of 1,800 and 470 fpm.

Instead of working at the head tower where the hoist is located, the cableway operator functions in a self



White River was first kept south of monolith 16, then sent over monoliths 10 to 15, finally turned back over monolith 22 which was kept low.

. . . Table Rock: 7½-ft concrete lifts



BOX-TRUSS FORM, offering great resistance to deflection for 7½-ft lifts, folds at mid-height so concrete can be placed close to form on sloping faces.

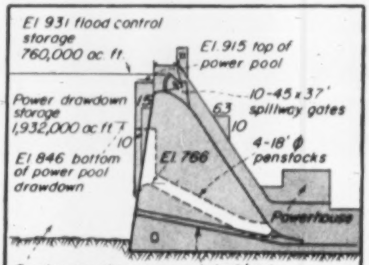
propelled control tower across the river that rides the same tracks as the bucket-carrying railroad dinkey. Thus, the operator overlooks the bucket—and can lift it more quickly than if he were located at the head tower and had to rely on bell signals.

When he is ready to move the concrete bucket to the monoliths, the cableway operator raises his eye to a television receiver and sees the cableway sheaves a half mile away in the head tower. These sheaves are marked so that simultaneous travel and lift of the bucket can be coordinated. A single 500-hp motor powers separate carriage and load line drums.

As the bucket nears the dumping point, the operator receives bell signals from the dam and controls the bucket by noting the number of revolutions of the sheaves on the TV screen. Production averages 140 cu yd an hour.

A second cableway at Table Rock, equipped with a 4-cu-yd bucket, handles concrete for the stilling basin and training walls and occasionally helps out on the monoliths. It has a stationary tail tower next to the big cableway's head tower and a traveling head tower containing the hoist. The operator works in a stationary control booth overlooking the bucket pick-up point. Normal daily concrete placement from both cableways is 3,000 to 3,600 cu yd, or 15,000 cu yd a week.

To speed discharging of concrete buckets, the contractor is testing a hydraulic opening system designed by Blaw-Knox as a replacement for the slow and somewhat dangerous compressed-air method. The hydraulic system is cocked by incoming concrete at the batch plant. It is opened at the pour by triggering with a hooked-end pole. One problem to be solved has been oil leaking from the hydraulic system fouling the concrete.


El 931 flood control storage 760,000 ac ft
El 915 top of power pool
Power drawdown storage 1,932,000 ac ft
15
63
10-45 x 37' spillway gates
10
10
4-18' ϕ penstocks
El 846 bottom of power pool drawdown
El 766
Powerhouse
Dead power storage 770,00 ac ft
4 x 9' sluice

SECTION through dam indicates multi-purpose functioning.

• **Aggregate plant**—Aggregate source for Table Rock Dam is Ozark Mountain limestone, available about a mile from the dam site. A truck-mounted drill, working on relatively flat benches, manages one 4-in.-dia 40-ft blast hole per hour. A primary crusher at the quarry products 7-in.-minus material which is belt conveyed 6,000 ft to an elaborate aggregate plant consisting of four secondary crushers and an extensive system of screens, washers and rod mills.

The plant is capable of 275 tons per hr of 6-3-in., 3-1½-in., 1½-¾-in. and ¾-in. to 4-mesh coarse aggregate and 100 tph of 4-16-mesh and minus 16-mesh sand. The stone is stored in silos while the sand is stockpiled.

The batch plant is equipped with three 4-cu-yd tilting mixers and two 5,600-bbl cement silos. Cement in the mill is 75% portland cement and 25% natural cement.

To achieve an allowable maximum concrete placement temperature of 50 F, the contractor relies upon a variable combination of cold-air precooling of aggregates in storage silos, cooling of aggregates in batch bins, and addition of cold water (35F) or flake ice to the mix water. Precooling has lowered aggregate temperature as much as 30 deg. F. An 1,150-ton refrigerating plant employs ammonia compressors.

• **Project plan**—Table Rock, for flood control and power, is the third major dam of a series of nine reservoirs projects planned for the White River basin, which empties into the Mississippi River about 120 miles north of Vicksburg, Miss. Already in operation downstream are Bull Shoals Dam on the main steam and Norfolk Dam on the North Fork River.

Table Rock will be equipped initially with two 50,000-kw generators, with provision for two more similar units. With the ultimate power installation, Table Rock will produce 346 million kwh of prime energy annually and an average 493 million kwh in all, and will increase the potential output at downstream plants by 85 million kwh. Head available at top of power pool is 204 ft.

It is expected that about 95% of the time Table Rock reservoir will fluctuate in the power pool stage between elevations 846 and 915. The reservoir will rise into the flood-control pool for about two weeks a year on the

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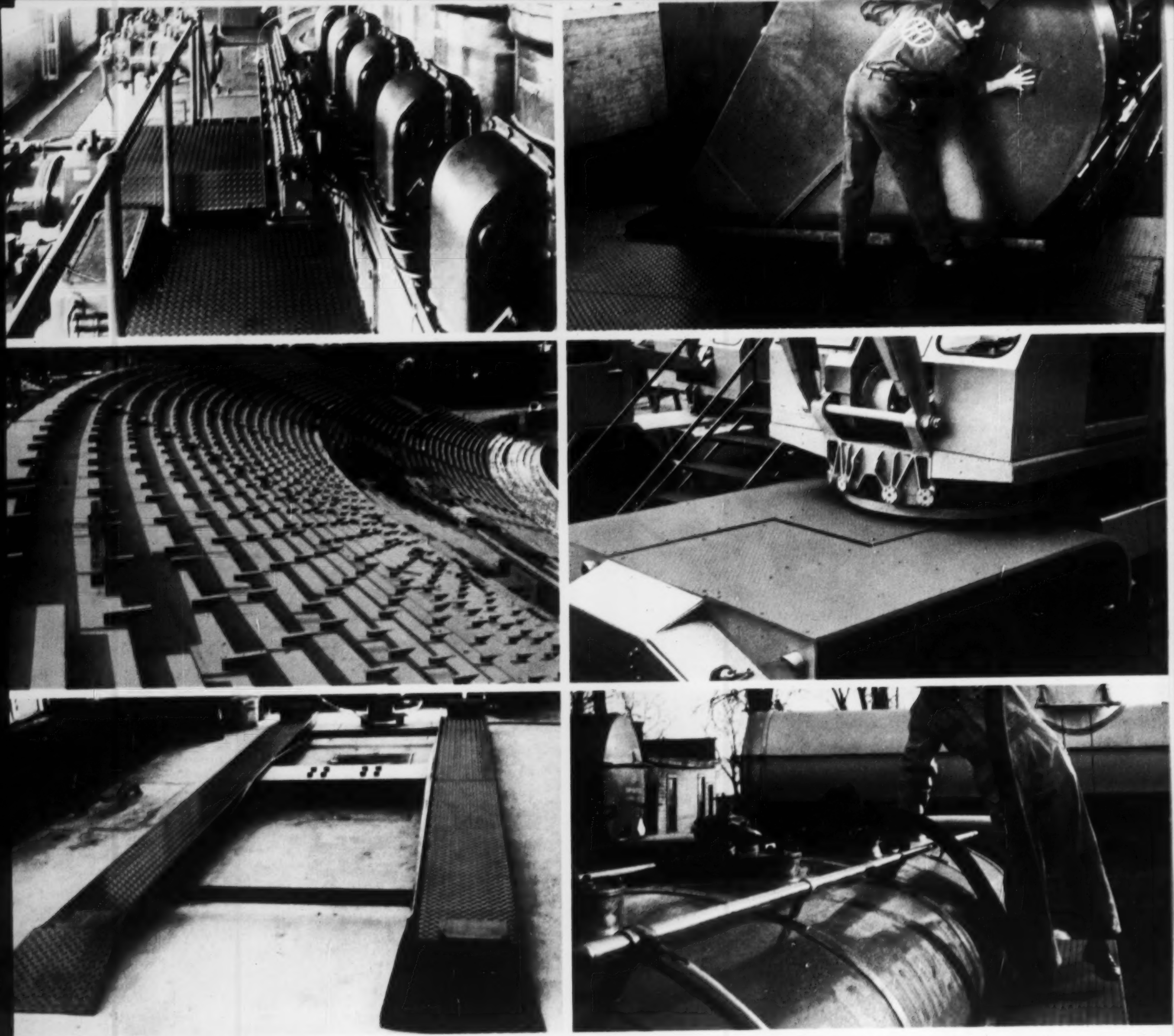

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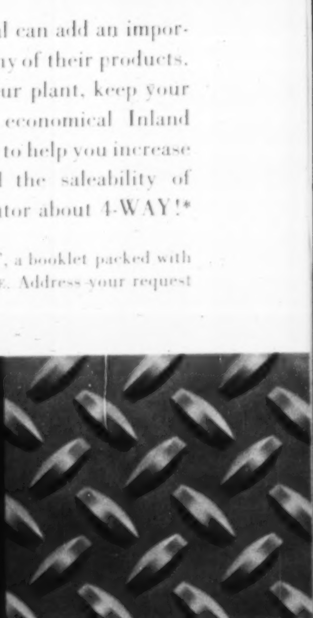
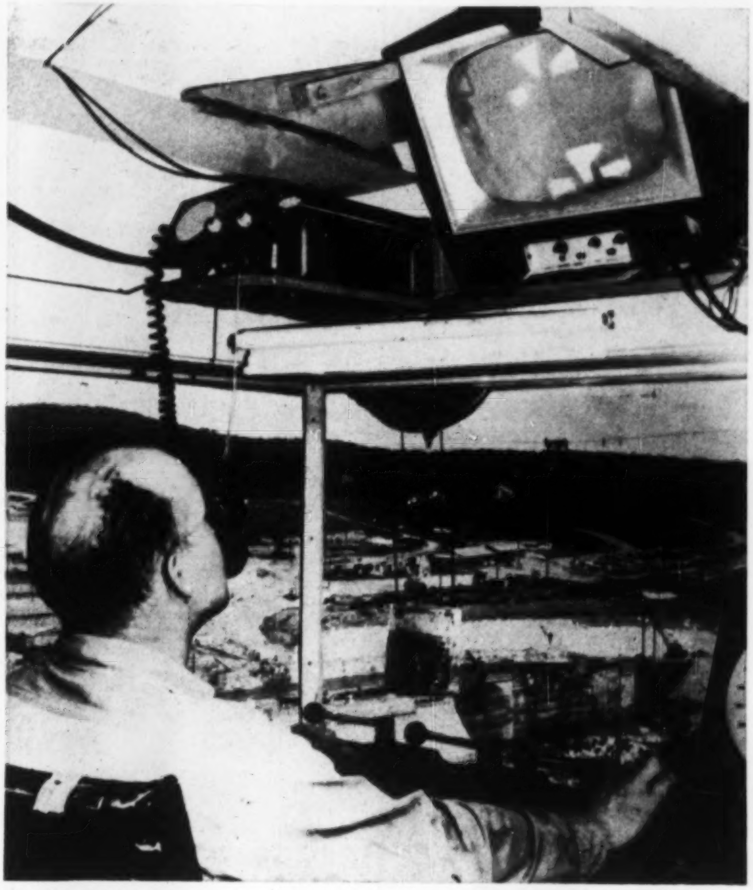


. . . Table Rock: Cableway control via TV



TV SCREEN in traveling control tower provides cableway operator with close-up of sheaves on hoisting machinery ½ mi away in stationary head tower.

average, although these periods will last as much as several months in some years.

The flood pool storage at Table Rock plus Bull Shoals is equivalent to 9.7 in. of water falling on the 6,000-sq-mi drainage area upstream from Bull Shoals.

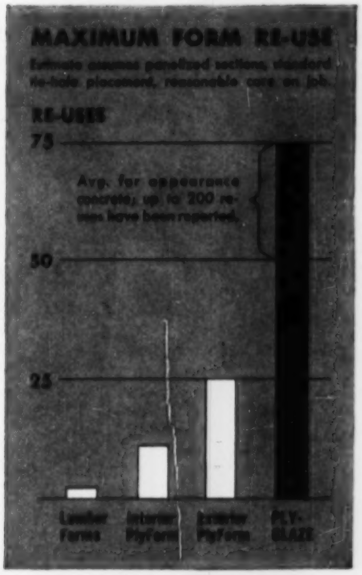
• Construction delays—Despite two recent mishaps, Table Rock construction is on schedule and should be completed in the summer of 1958, with first power on the line late in 1959. In February, winds up to 100 mph set the tail tower of the main cableway in motion and it rolled through a barricade at the end of its track and on down an embankment (ENR Mar. 29, p. 23). The tower was rebuilt in six weeks—this time with a wheel brake instead of a motor brake which failed to resist the high winds.

Heavy rains in May brought flood waters to the dam site that threatened to breach a low cofferdam. The contractor prevented a major break-through by flooding the penstock area to equalize pressure on the embankment. Nevertheless, the high waters did wash out a small section of cofferdam near the top as well as several low-water bridges. Total delay was four days.

Table Rock Dam is being constructed under a $24.4-million contract held by a joint venture of Morrison-Knudsen and Utah Construction together with H. B. Zachry Co., San Antonio; Ralph E. Mills Co., Salem, Va., General Construction Co., Seattle; and Fruin-Colnon Contracting Co., St. Louis.

Contracts for the power facilities have not been awarded yet. Work at Table Rock is being supervised by the Little Rock District, Corps of Engineers, Lincoln F. Sherman, project engineer. Col. S. Brown is district engineer.

The contractor's forces are headed up by M-K's Arthur A. Campbell. H. I. Maxwell and C. W. Bolton are general superintendent and project engineer, respectively.



50 to 75 is a good average, but with care you can get up to . . .

200 RE-USES with PLYGLAZE®

CONCRETE FORM PANELS

PLYGLAZE's tough, hard surface stands up indefinitely under repeated concrete pourings. PlyGlaze forms are worn out only when the panels are cut into unserviceably small pieces. With proper design and care you should get 50 to 75 re-uses. Actually, *over* 200 have been obtained—even then PlyGlaze continues to form good-looking concrete.

ST. PAUL & TACOMA LUMBER CO.
TREE LIFE FOREST PRODUCTS
Another member of the famous Tree Life Family of Forest Products
Hard, glossy-smooth wear resistant fused resin-fiber surfaces.
Top-quality Exterior plywood (EXT-DFPA). Standard panel sizes.
PLYGLAZE EXT-DFPA

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Dept. ENR, Tacoma 2, Wash.
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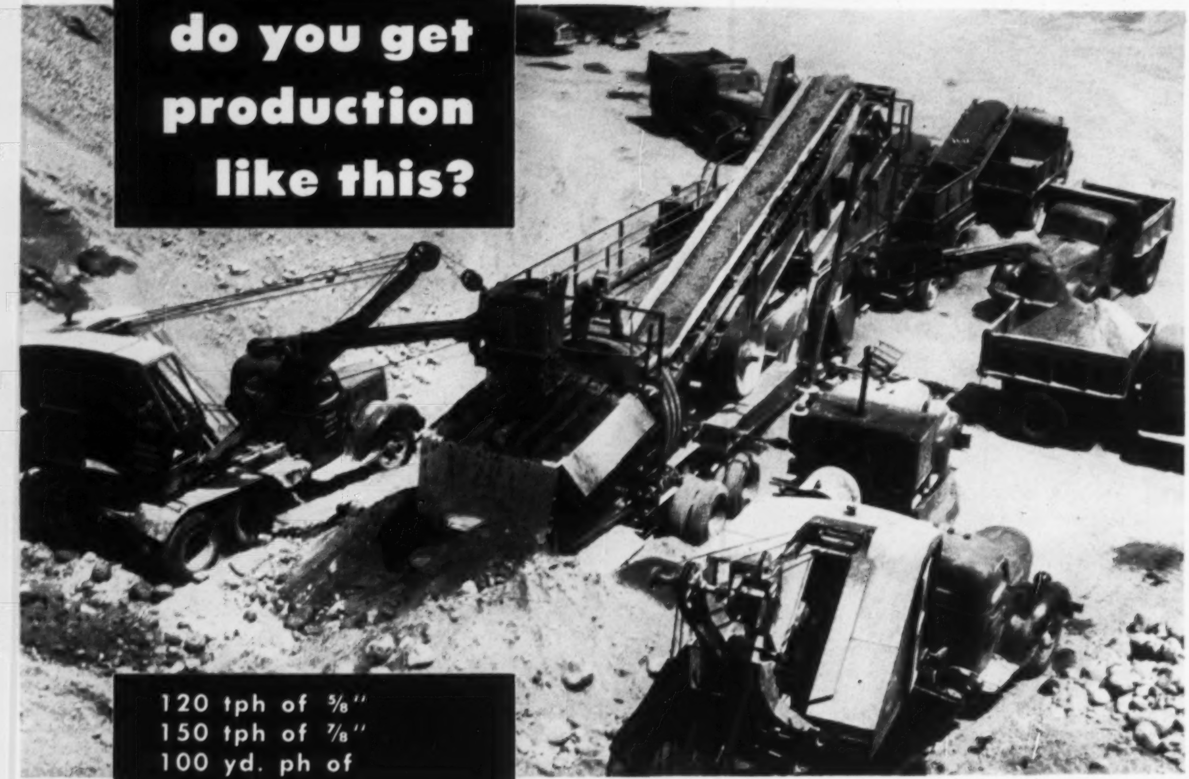
do you get production like this?



120 tph of ⅝"
150 tph of ⅞"
100 yd. ph of
¾" road gravel

"Lippmann Portable Dual Crushing Plant cannot be matched" says Ontario contractor

Glenn S. Coates, president of Fowler Construction Co., Bracebridge, Ontario, reports on the performance of their Lippmann dual portable crushing plant — a story of real output from several pits — best told in his own words:

"From the first of June to the end of December, we have crushed 91,239.3 tons and 35,501.5 yards of gravel in different locations. It can be seen that we have had considerable moving time. The time lost for moves is as small as any portable we have seen.

Our production has averaged 120 tons per hour of ⅝" materials, testing 55-60% stone, and 150 tons per hour of ⅞" materials, testing 45-50% stone. Both of these items are Government test, mainly for asphalt use. Our production of ¾" Township road gravel, testing 50% upwards of stone, has averaged 100 yards per hour. We are pleased with the output, *as in every case it has been higher than the Lippmann people estimated.*

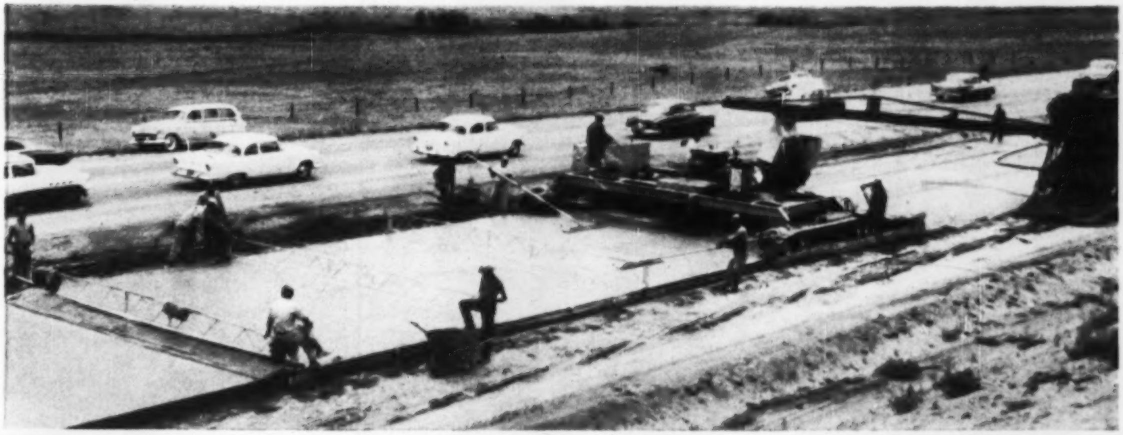
We consider our plant the largest portable plant in one unit in the Province of Ontario. The 12" x 36" jaw, and 40" x 20" rolls with the 4' x 12' screen and 30" belts throughout cannot be matched in one unit by any other make.

Our production figures *are not overstated, or based on our best day's run.* They are taken on average from many pits and conditions and in very few cases were there any days with lower amount than those quoted herein.

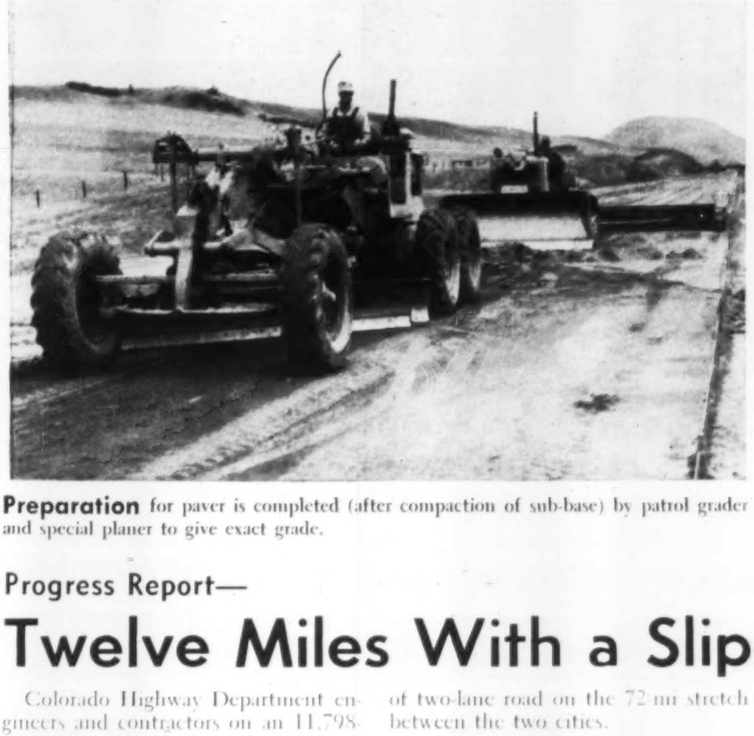
The plant maintenance on the Lippmann is, we believe, as low or lower than any plant crushing under similar conditions. We have no hesitation in recommending the Lippmann equipment to any prospective purchasers and we will frankly discuss its merits with anyone referred to us."

Owners of Lippmann Portable Crushing plants cite other reasons why they like their Lippmann plants, such as the balance between all the components that eliminates lost motion and saves power . . . the good stability and arrangement that makes them so mobile . . . the fact that they require no blocking or jacking for quick and easy set-up. Also mentioned is the exceptional performance of the individual components, such as the famous Grizzly King or Rock Ram jaw crushers, superior roll crusher secondaries, Screen-All screens and Ever-Seal conveyor idlers that never need greasing.

Those who want to know more about the kind of performance Lippmann machines turn out — whether it's crushers, feeders, screens or complete plants — can learn by contacting a local Lippmann Dealer, or Lippmann Engineering Works direct at 4645 West Mitchell Street, Milwaukee 14, Wis., U.S.A.



Machine at work—Entire paving spread is visible here, with offside mixer depositing concrete in front of paver, machine leaving a finished slab behind its 57 ft of trailing forms.



Preparation for paver is completed (after compaction of sub-base) by patrol grader and special planer to give exact grade.

Last step is sawing joints in finished slab. Joints are filled with hot plastic.

Progress Report—

Twelve Miles With a Slip-Form Paver

Colorado Highway Department engineers and contractors on an 11.798-mi section of highway south of Denver, have reported satisfaction with the performance of an electric-powered slip-form (formless) paver. The machine put down a total of 172,340 sq yd of unreinforced concrete paving, at a daily rate of between 1,750 and 1,845 ft of two-lane roadway. The slab is 24 ft wide and 8 in. thick.

The work was a federal-aid project that completes a major link in a program for four-laning U.S. 85-87 between Denver and the state's second largest city, Pueblo. The route is Colorado's most heavily traveled north-south road, and completion of the latest section leaves only 15 mi of two-lane road on the 72-mi stretch between the two cities.

• Opinions—From W. K. Logan, general superintendent for Bushman Construction Co. of Kansas City, Mo., general contractor, come these comments:

"There is definite economy in labor needed with this machine. . . . But the job isn't quite as smooth as with conventional pavers and forms—you need hand finishing, and its a little difficult on soft grade. But it's the coming thing.

Comments H. G. Phelps, project engineer for the highway department: "The paver is . . . entirely satisfactory and there are definite savings. We're satisfied with the job. Production was especially good."

Both men estimated that savings might approach 25 to 30 cents per yard—or roughly 8% on the $713,771 contract.

• Machine is star—The slip-form paver itself—supplied by the Quad-City Equipment Co., Rock Island, Ill.—was the star of operation, observers agreed.

It achieved its production in 9-hr shifts, serviced by a crew of 18 men—who operated the paver itself, a companion dual-drum mixer, floated and finished the surface, and sprayed and cut joints in the resulting slab. Other workmen, of course, were occupied in preparing the grade, operat-

BUILT FOR FAR INTO THE FUTURE...

OHIO TURNPIKE

...with miles and miles of

CLOW

CAST IRON PIPE

built for more than 100 years of service

Eight "Service Plazas" along the 241 miles of the new Ohio Turnpike might be called "cities in miniature"—providing the many services that traveling America wants or needs for its cars, their drivers and passengers. Each has its own self-contained water system; drawing its water from adjacent wells or, in two instances, from nearby towns.

Clow Cast Iron Pipe was used in the water supply, treatment, distribution ~~and~~ sewage disposal systems—because today more than ever before, Clow's precise, modern production methods and advanced, exacting control of metallurgical quality give forward-looking engineers added assurance of permanence.

Invite a CLOW man in to talk with you as soon as pipe appears in your plans.

SINCE 1878

JAMES B. CLOW & SONS, Inc.

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Subsidiaries:
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

ing a sizable aggregate plant, and trucking.

Electric power for the paver is generated by two 35-hp gasoline engines mounted on it, to permit the machine to travel on its own crawlers at a rate of about 3.5 ft per min. Additional motors supply power for two vibrator bars in front of the screed and tamping bar. As it moves forward, the paver drags steel slip-forms, extending 57 ft backward from the screed, held rigidly in place by three steel cross-frames bridging the nearly finished slab.

The crawlers traveled on precisely prepared grade, exactly 8 in. beneath the surface of the finished concrete—the 22-ft length of the crawlers providing a uniform riding surface. The mixer was spotted off the prepared grade to prevent disturbance, and fed the paver via a 34-ft boom and a 1.5-yd conveyor bucket.

After concrete—deposited in front of the paver—is levelled by a strike-off bar and screeded, a 24-in. transverse belt is passed over it to level any remaining high spots. Four men behind the paver then finish the pavement with long-handled bull floats, and a final finish it applied by burlap cloth dragging from the last cross-frame bridge.

• Paving procedure—An aggregate plant—later moved to three separate sites—was set up on the job. From this plant, a fleet of six 2-ton and three 1½-ton dump trucks—their bodies compartmented to carry separate batches of 1.4 cu yd—hauled the aggregate to the mixer at the scene of paving operations. The mix was made up of 9.3 bags of cement, 1,378 lb of fines, and 2,954 lb of coarse aggregate (rock varying from ¼ in. to 2 in.).

The concrete had a 1¾-in. to 2-in. slump; cylinder tests at 7 days showed strengths of 2,700 to 3,600 psi.

The dual-drum mixer provided a batch every 64 seconds, and deposited the new concrete in front of the paver. If the concrete in front of the paver became too high, an electrically driven strike-off bar, set 9 in. above the prepared grade, was brought into play to move the material away from the machine. This strike-off bar overcame an earlier problem with the paver, when it was found, a year ago, that a surplus of concrete ahead would cause its tracks to slip on the subgrade.

The slab is not reinforced, the only steel being ¾-in. bars 24-in. long, spaced every 18 in. apart along the center line of the 24 ft wide slab.

After the slab had set, saws were used to cut tranverse joints every 25 ft, and the joints filled with a hot plastic filler.

The ring of quality

Colorful, low-cost sidewall rings that can be quickly installed on tires are now contributing to the luxury-look of today's new cars. They're inexpensive, stay brilliant for life, wash bright in seconds, out-last tires. A product of The Bearfoot Sole Co., Wadsworth, Ohio, these rings are available in a variety of colors or in white. They're made of Enjay Butyl Rubber because no other rubber tested could equal its performance in severe laboratory and road tests. The Enjay Butyl label on the Flex-A-Wall® carton assures the buyer of outstanding quality.

Find out for yourself the many technical advantages of Enjay Butyl—the rubber that is outperforming natural and other types of rubber in a wide variety of industrial and consumer applications. For full information, and for technical assistance in the use of Enjay Butyl, write, wire or phone the Enjay Company.

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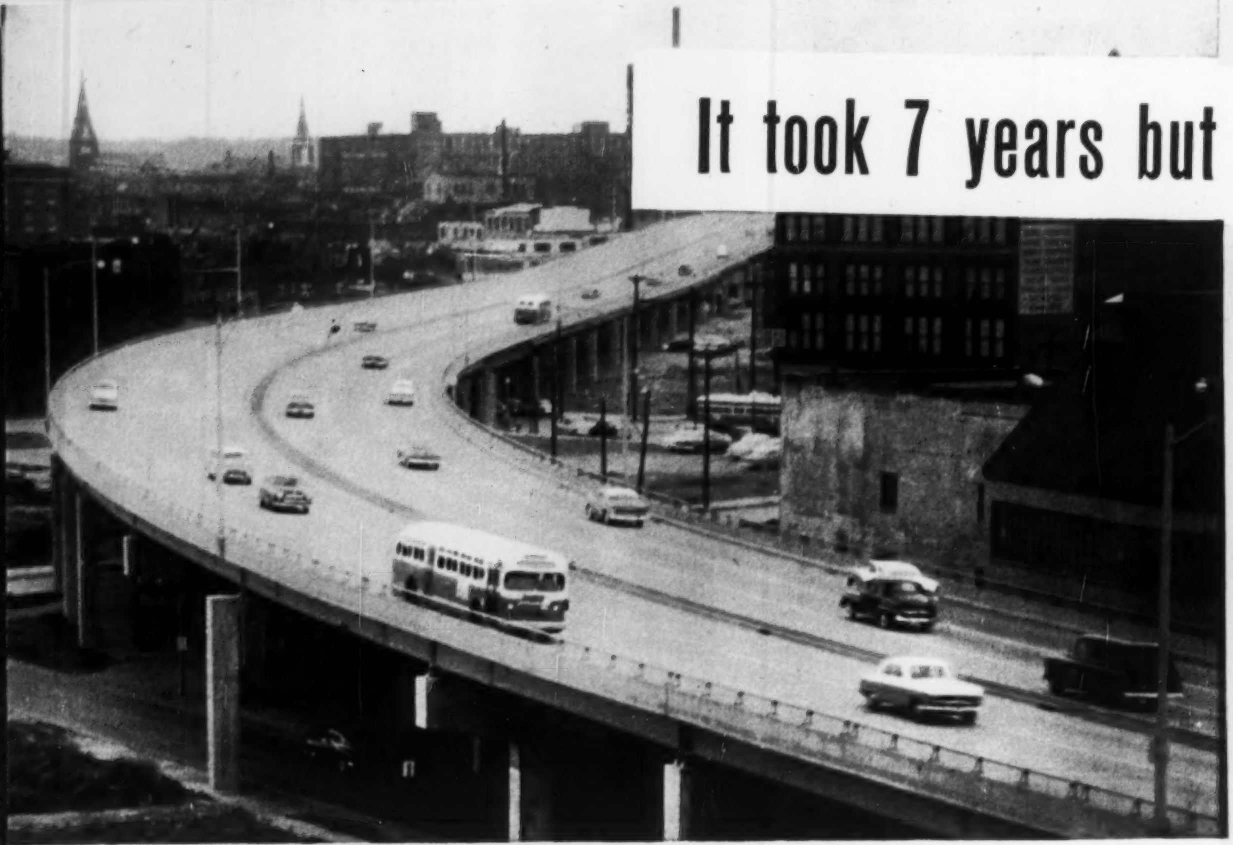
Enjay Butyl is the super-durable rubber with *outstanding* resistance to aging • abrasion • tear • chipping • cracking • ozone and corona • chemicals • gases • heat • cold • sunlight • moisture.

It took 7 years but



This 1.7-mile stretch is the first part of St. Louis' new expressway system in operation.

HOW TO GET THREE MORE HOURS A WEEK AT HOME

Follow the lead of Larry Wood and his fellow commuters in St. Louis. They voted themselves the time. How? It's a result of Missouri's 10-year highway program

Larry Wood spends 90 minutes a day on a bus—going to his St. Louis office in the morning and returning to his suburban home at night. And Larry is *typical*—for buses carry *half* the people going into the downtown area. What's more, traffic congestion has been getting steadily worse.

But last year, St. Louis commuters had a chance to cut traveling time as much as 40% by putting an "X" on a ballot. They helped pass a bond issue which will produce multiple-lane expressways coursing right into center city. All these limited-access highways are designed to carry buses as well as automobiles. Result: Larry's bus trip will be cut an estimated 18 minutes each way. That's 150 hours a year—over six full days! He can stay in bed later—get home in time to play with the children. Motorists will have even more time.

The expressways are part of Missouri's model 10-year highway program started in 1952. In urban areas, state and federal money pays for everything but half the cost of acquiring right-of-way. The local bond issue, which Larry helped pass, will pay that. In 10 years, Missouri will spend more than a half-billion dollars building roads: expressways in urban areas, highways between cities, and 12,000 miles of additional farm-to-market roads. Federal Interstate Highway Aid will help. (Missouri spent more than $3½ million last year on surveys to take immediate advantage of the new Federal program.) But overall road improvement is still a state responsibility.

Good roads save far more than they cost—in time, in lives and in actual cash. To find how you can help the road program in your own state, write for the free booklet, "Road Block." Address Dept. 9, Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

Wherever you see Caterpillar machines working on your roads, you can be sure your state is getting its money's worth.

helped you get a 41,000-mile highway job

CATERPILLAR
Caterpillar

THE big, overriding reason that the Federal government is going to spend $32,900,000,000 to build highways during the next 13 years is that the people demanded it. Not only that, they are willing to pay for it.

One of the important forces that helped mold this powerful public demand was a continuous seven-year advertising campaign by Caterpillar to promote good roads. Like the advertisement on the opposite page which appears in *The Saturday Evening Post* in September in full color.

Now the money has been voted. Contracts are being awarded today to get the huge program rolling. Once again you and Caterpillar are going to be partners in progress—this time on the biggest public works jobs in history. And Caterpillar is better prepared to help you than ever before.

For during the seven years that this advertising has appeared, Caterpillar has sponsored an intensive research and development program. Result: today it has the most complete line of high-production, cost-cutting earthmoving machines in the world. And there are new and improved models all down the line. Tractors, Traxcavators*, Motor Graders, Engines and Electric Sets. They're ready to give you greater production, lower operating costs, and surer profits in the big job ahead.

The CAT* DW21 Tractor (Series C) and its matching No. 470 LOWBOWL Scraper is just one example. Today this unit is powered by a 300 HP (maximum output) Caterpillar Engine with Turbocharger. Its big, new wide-section tires add flotation and traction to save on tires and maintenance.

Add to this the new LOWBOWL Scraper, designed to load 18 cu. yd. struck or 25 cu. yd. heaped, and you have faster loading, bigger loads, faster cycle times . . . *and bigger profits.*

Caterpillar—and your Caterpillar Dealer—are proud that the big yellow machines are the world's No. 1 road building equipment. But prouder still that they won that leadership in the field . . . working in partnership with you.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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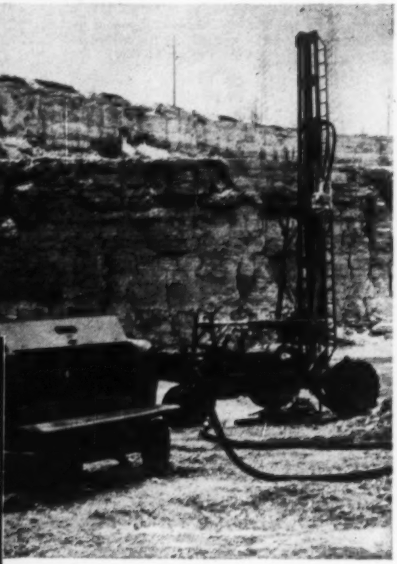
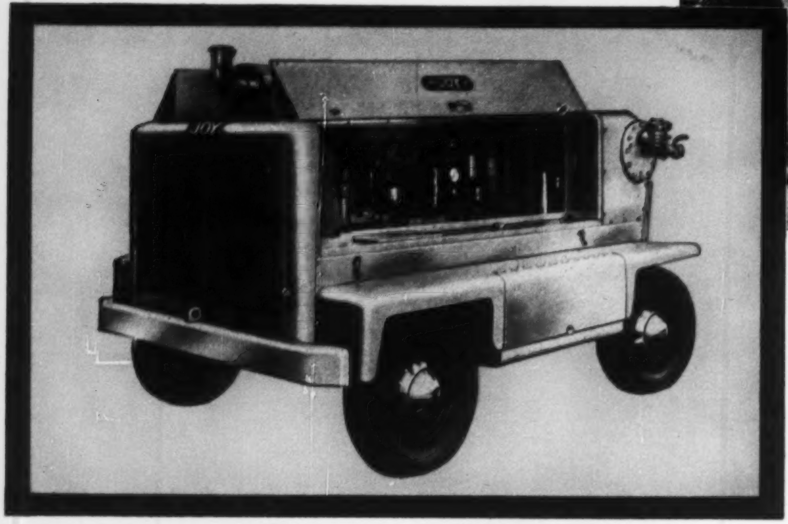
LEADERSHIP IN ACTION

Not only NEW but DIFFERENT



Joy RP-600 Airvane Rotary Portable Compressor furnishing air for a Joy Challenger Drill in an Illinois quarry.



JOY AIRVANE ROTARY COMPRESSOR

Joy engineers started with all accumulated rotary information—then went on from there to produce, we believe, the best rotary compressor available today. These Joy developments contribute materially to a superior machine:

THERMAL BY-PASS Heats oil quickly, keeps it flowing into compressor at correct temperature—*under all weather conditions.* Efficient oil circulation system provides immediate lubrication (no dry starts).

SPLINE COUPLING Does away with a clutch, gives greater power-transmission efficiency. It's light, takes little space, is virtually indestructible.

TWO-STAGE FILTER-SEPARATOR Removes oil from air and returns it to circulation system so efficiently that oil consumption becomes a minor item.

ECONO-MISER load control automatically selects most efficient engine speed, maintains steady pressure, saves fuel, increases compressor life.

SHORTEST TURNING RADIUS Compact design and low center of gravity give the shortest turning radius of all rotaries. With light weight, this spells *maneuverability.*

OTHER FEATURES (often overlooked) Body is waterproof—tool box and fuel tanks can be locked—doors stay open without props—three lifting rings support entire machine—push-button uses ether-capsule for cold weather starting.

Write for complete information to **Joy Manufacturing Company Oliver Bldg., Pittsburgh 22, Pa.** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Write for FREE Bulletin 69-24

Consult a Joy Engineer

for AIR COMPRESSORS • ROCK DRILLS • WAGON DRILLS
CORE DRILLS • BLAST HOLE DRILLS
PORTABLE HOISTS • FANS • BLOWERS • TUNNEL,
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JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

New Products

Put Down in Wet Concrete Steel Tiles Toughen Floors

Perforated steel tiles, 12x12x¼ in., are designed literally to armor-coat floors subject to heavy abuse. Laid in concrete, the tiles are said to provide years of service without cracking, chipping or noticeable signs of wear. The steel sections are particularly recommended for areas subjected to the pounding and abrasion of small-wheeled trucks, dollies, fork trucks, skid boxes and heavy cans. Perforations make the tiles safer.

According to the manufacturer, the sections can be laid as quickly as the base is prepared. Bond is provided by anchors on the underside, punched from the steel itself. Periodic cleaning is all that is necessary for maintenance. Bethlehem Steel Co., Bethlehem, Pa.

Concrete Cutter Improved

Engineered Equipment, Inc. has announced a new model concrete cutting saw designed with improved features.

The manufacturer claims that the saw will cut at any speed desired from 10 in. to 20 ft per min and can use 12-in. to 20-in. diameter blades through a quick change of the guard size.

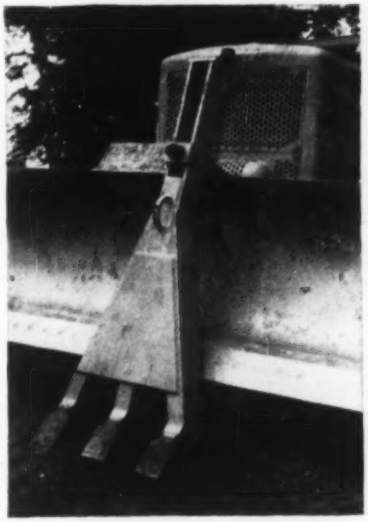
The machine is available in 15, 25 and 36-hp gasoline engines, either manual or self-starting. One of the improvements claimed by the manufacturer is that the engine is mounted on the frame instead of the arm to eliminate tilting of the machine, and use of the weight for better alignment of blade with cut. The machine also contains a faster, easier manual screw depth setting plus a foot lever for quick removal of the blade from the cut, without losing depth setting. Engineered Equipment, Inc., Waterloo, Iowa.

Sound-Booth Framing Offered As Acoustic-Panel Accessory

Acoustic panels introduced by Elof Hansson are accompanied by the structural materials and accessories needed for construction of such noise barriers as machine enclosures, sound-deadening partitions and sound booths. Among the accessories available are windows, steel studs, channels and soundproof doors.

The acoustic panels are reflective on one side, absorptive on the other. The reflective surface is either tempered hardboard or cement-asbestos. The perforated absorptive face may be either perforated aluminum or hardboard. Noise reduction coefficient is 0.70.

Panels can be fabricated with ordinary electric drill and electric saw with carbide-tipped blade. Standard panels are 4x8 ft, 2½ in. thick, but special sizes can be made to order. Elof Hansson, Inc., 711 Third Ave., New York 17, N. Y.



Stumper for Dozer

A three-prong stumper that can be attached to any bulldozer blade from 35 to 51 in. in height has been introduced as the Ransome Model R100. The R100 is said to contain a positive clamping device that permits mounting or removal in a matter of minutes with no alteration to the dozer blade. Manganese teeth are replaceable, and their projection is intended to concentrate the push of the tractor and the lift of the blade for quick stump removal. The Ransome Corporation, 2729 Hunting Park Avenue, Phila.

Hole Saw Added to Line Of ¼-In.-Drill Attachments

A hole saw for wood, metal or plastic is the latest addition to Aladdin's line of attachments for portable electric tools. The complete kit—lightweight cast-alloy body, permanently centered ¼-in. pilot bit, and four high-carbon steel blades—sells for $4.95. Saw-blade diameters are 1, 1½, 2 and 2½ in. Cutting depth is ¾ in. Extra saw blades are available in either 8 or 14-tooth pattern. Aladdin Mfg. Co., 3125 Harrison, Kansas City, Mo.

Tube Is Thin Metal Strip Spirally Wound to Size

Using a process originated in Europe, an American firm is making lightweight metal tubing that consists of a helically wound thin strip of lead-coated steel. Inside, the tube is smooth—spiral ridges show on the outside.

Main use of the material is in prestressed concrete, as sheathing for post-tensioning tendons. The smooth interior and lead coating facilitate the insertion of tendons, particularly the last one or two. The outside ridges anchor the tube securely in the concrete. The product is also used in buildings, as cast-in-place ducts for wiring and pipes; and in electrical work, to form ducts in concrete conduit. The makers say that it can be bent easily by hand, yet is sufficiently rigid to need very few supports when placed in concrete forms. Because of the thin gage of the metal, the tube can be cut with a knife.

Manufactured in seven sizes from

BUILD
BRIGHT COLORS
RIGHT INTO
CONCRETE
FLOORS...

And get greater hardness at low cost . . . easily!

TRUSCON
ART-ROC
AGGREGATE

TRUSCON
ART-ROC
AGGREGATE

Ready to use . . .
No pre-mixing with cement

Not a paint . . . ART-ROC troweled into the cement surface holds attractive colors safe from attack by cleansers, alkalis or rust. Provides a tough extra-hard surface at no extra cost . . . both for interior and exterior installations. Floors or pavements with ART-ROC are bright and attractive . . . easy to clean, economical to keep up.

Colors . . . Hardens . . .
Beautifies . . . Dustproofs!

Just sprinkle on the leveled and floated fresh concrete surface, then work into the surface with a wood float and finish with a steel trowel. You'll be amazed at the brilliance and depth of the two beautiful colors: Tile Red and Spanish Green.

Remember . . . ART-ROC is not just a surface film, but color that's built-in to stay . . . and it's so easy to use!

- Terraces
- Porches
- Walks
- Tennis Courts
- Salesrooms
- Recreation Rooms
- Restaurants
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- Swimming Pools
- Driveways
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Truscon Laboratories, Dept. E-31
Box 69, Milwaukee Junction P.O.
Detroit 11, Mich.

Please send me detailed information about ART-ROC.

NAME________________
ADDRESS________________
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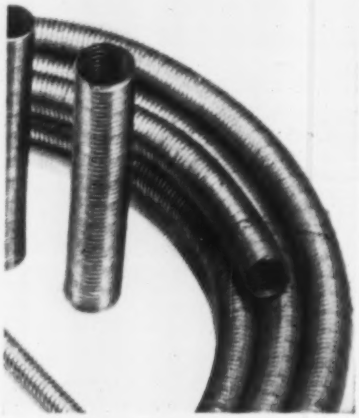


⅞-in. to 2-in. inside diameter, the material is furnished in any length. Usual minimum length is 120 ft. Titeflex, Inc., 10 Hendee St., Springfield, Mass.

New Line of Portable Heaters For Construction Work

A new line of Silent Glow, portable recirculating heaters for the construction field is now in production.

Extremely lightweight and portable, the heaters are said to be designed to meet industry's widespread and unlimited requirements for an economical lower price portable heater. The new line furnishes from 120,000 Btu to 300,000 Btu of recirculating heat, depending upon the model. Silent Glow Oil Burner Co., Hartford, Conn.

Device Levels Ladders On Stairs, Uneven Terrain

For about $30, you can purchase a self-leveling attachment that will adjust the bottom of a ladder to fit any type of terrain. Operated hydraulically, the Safety-Level is equipped with rubber pads for use on hard surfaces and with spikes for soft ground. It is constructed of aluminum and brass.

When a valve under the bottom rung of the ladder is opened, the ladder levels itself. When the valve then is closed, the ladder is locked in position. Eden Enterprises, Inc., 2000 E. Eden Place, Milwaukee 7, Wis.

New Economy Storage Tank Stands on All-Welded Tripod

The first of a new design series—an all-welded water storage tank on a tripod support—has been built for the Brae Burn Country Club at Bellaire, Tex. Capacity of the Brae Burn tank, which has the shape of an inverted inkwell, is 60,000 gal.

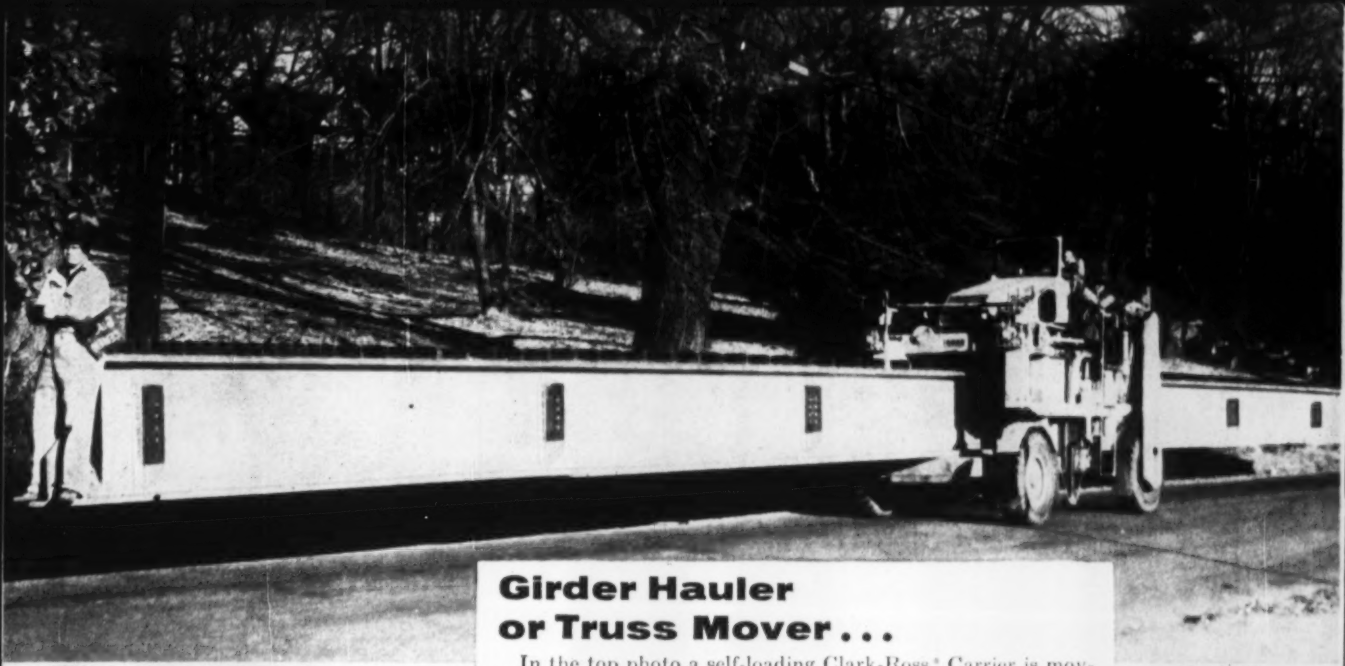
Features of the functional design, developed for small users needing dependable water reserves, include the elimination of sway bracing in the top panel and ease of erection using a single gin pole. Cost is said to be less than for ellipsoidal or hemispherical tanks of equal capacity, and maintenance easier with less painting area—there are only three supporting columns and no balcony.

Columns for the tripod design

One-Man Pipe Pusher

Production of a one-man pipe pusher for pipes up to 3 in. in diameter has been announced by Pow-r Devices, Inc. Through use of two bucket mounting pins, it is designed for attachment to any standard tractor-mounted hydraulic backhoe.

The pusher has a 4-in. stroke, operates at up to 30 tons pressure, and permits direction reversal without repositioning of tractor. Pow-r Devices, Inc., Dept. 122, Clarence Center Road, Clarence Center, N. Y.



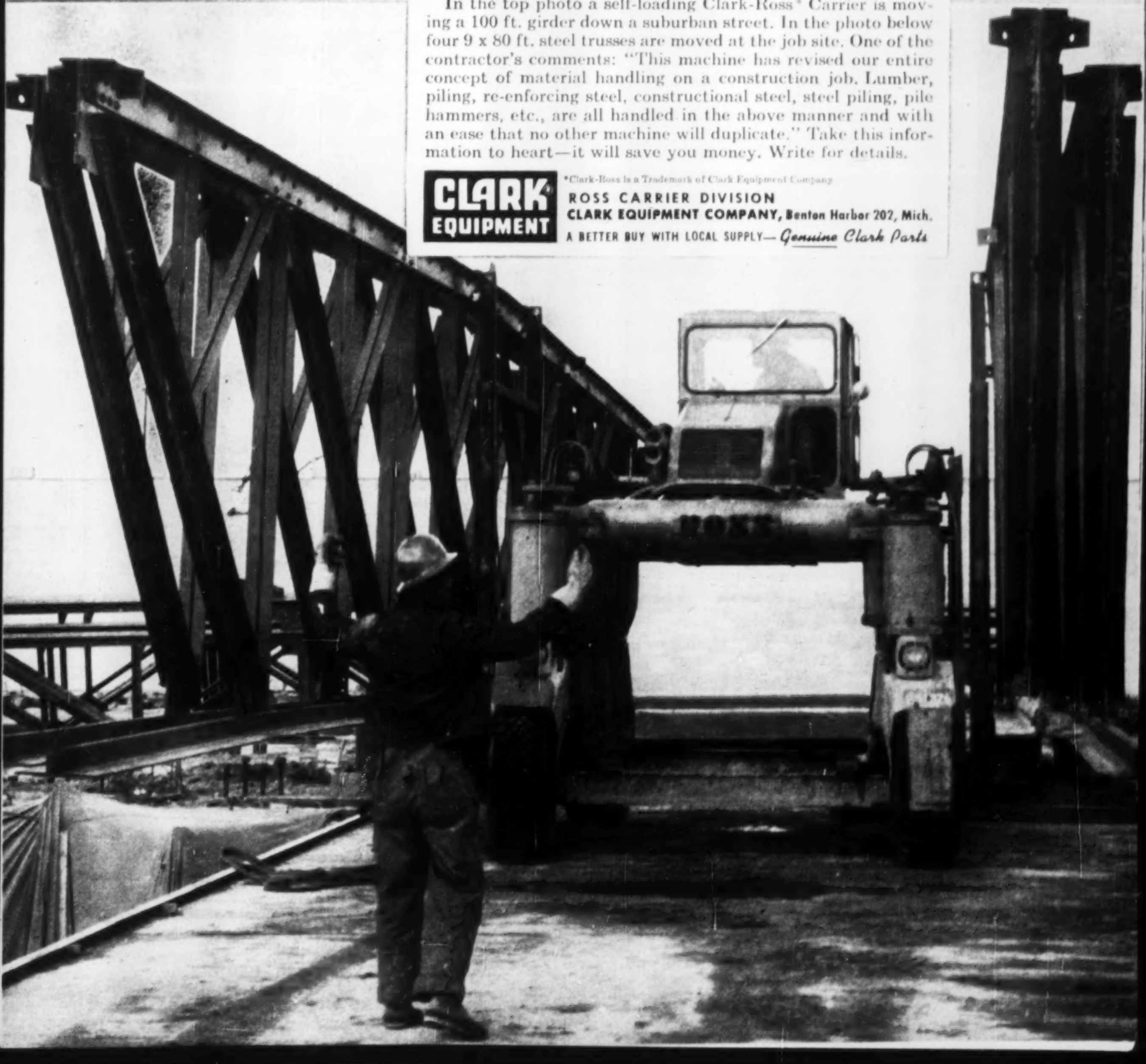
Girder Hauler or Truss Mover . . .

In the top photo a self-loading Clark-Ross* Carrier is moving a 100 ft. girder down a suburban street. In the photo below four 9 x 80 ft. steel trusses are moved at the job site. One of the contractor's comments: "This machine has revised our entire concept of material handling on a construction job. Lumber, piling, re-enforcing steel, constructional steel, steel piling, pile hammers, etc., are all handled in the above manner and with an ease that no other machine will duplicate." Take this information to heart—it will save you money. Write for details.

*Clark-Ross is a Trademark of Clark Equipment Company

CLARK EQUIPMENT

ROSS CARRIER DIVISION
CLARK EQUIPMENT COMPANY, Benton Harbor 202, Mich.
A BETTER BUY WITH LOCAL SUPPLY— *Genuine Clark Parts*



RUBBING CEILINGS?

Do it **with a GIRAFFE**

CEILING GRINDER

- **FASTER AND EASIER:** One man will average almost 4000 sq. ft. per day. Does not need scaffolding.
- **CHEAPER AND BETTER:** Money saved on finishing will help pay for grinding.
- **DEPENDABLE:** Individual GIRAFFES have worked more than 1,000,000 square feet without major overhaul.

GIRAFFE ®

Heights up to 24 ft.

Has been adapted to cleaning ceilings.

CONCRETE GRINDING CORP.
300 STRAIGHT ST. PATERSON, N. J.

range in diameter from 8 to 22 in., with riser pipe sizes from 6 to 10 in. The new tanks are available in capacities from 15,000 to 75,000 gal, and standard heights from 25 to 125 ft may be had. CHICAGO BRIDGE & IRON, 332 S. MICHIGAN AVE., CHICAGO.

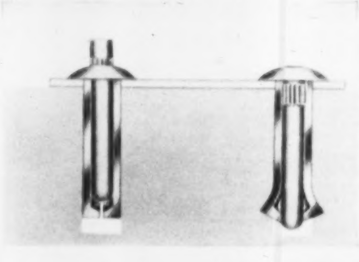
Pin Expands Four Prongs And Masonry Anchor Bites In

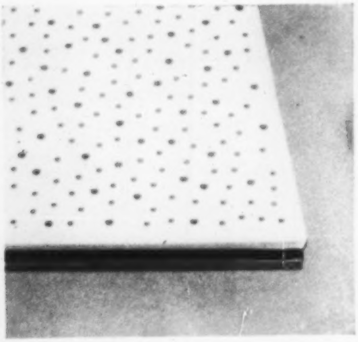
Four expanding prongs grip within a hole in masonry with the Star Pin-Grip Masonry Anchor, fastener that is secured by driving flush a pin that protrudes from its head.

Recommended for securing such items as pipe clamps, furring strips, electrical fixtures and insulation board to any kind of masonry, the fastener is easily installed.

First, a hole is drilled in the masonry equal to the diameter of the bored aluminum shank of the fastener. Then, the Pin-Grip is inserted through the fixture into the masonry hole, drive the stainless steel pin flush with the anchor head using an ordinary hammer. This forces out four expanding prongs to grip the wall.

A wide range of sizes are available. STAR EXPANSION, 142 LIBERTY ST., NEW YORK 6, N. Y.

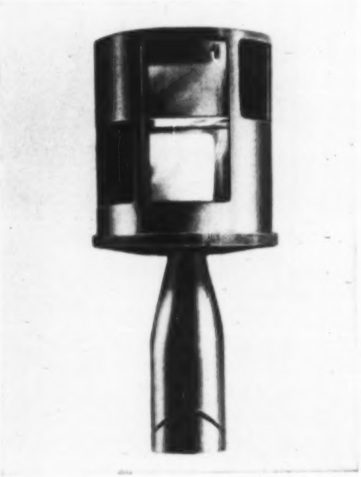




Acoustic Sheet, Fiberboard Combined in Form Board

Acoustic material and asphalt-impregnated fiberboard—a ½-in. layer of each—are laminated with a vapor-permeable adhesive to make up Armstrong Cork's new acoustic form board. The material is said to have a noise-reduction coefficient of 0.55 and heat transmission factor of 0.36 Btu at 75 F mean temperature. Light-reflection coefficient of the factory-primed random-perforated acoustic side is 0.78.

Designed for use with lightweight cast-in-place roof decks, the panels are tongue-and-groove matched on the ends and require no splines or cross tees. Sheet size is 24x48x1 in. ARMSTRONG CORK CO., LANCASTER, PA.



Prism Protector

The double pentagonal prism, plumb-bob size surveying device which can do the work of a transit on certain jobs, has been given a new cover, protection against dust and moisture. Geo-Optic Company, Inc., 170 Broadway, New York 38, N. Y.

A SPACE-SAVING, READY-TO-GO

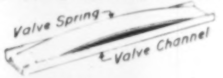
Ingersoll-Rand
IR

125 hp

TWO-STAGE AIR-COOLED

MOTORCOMPRESSOR

- **Easy to install**
- **No water jackets or piping**
- **No freezing problem**
- **Air cooled intercooler**
- **Constant speed or dual control**
- **I-R Channel Valves**

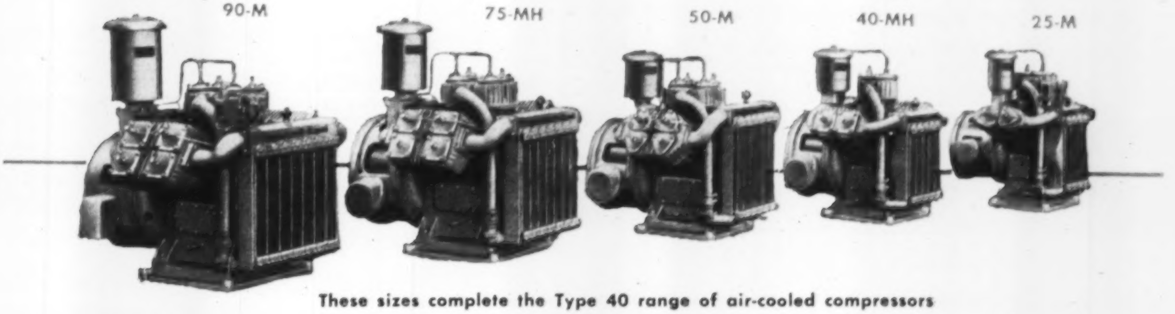


High Efficiency
Quiet Operating
Exceptional Durability
Entirely Different
Stainless-steel Channels and Springs
Air-cushioned action
Found only on I-R compressors

Newest addition to the Ingersoll-Rand line of Type 40 compressors, this heavy-duty, air-cooled unit offers new convenience and economy for the generation of 80-125 psi air power in the 125 hp class. Shipped fully assembled, its compact, well-balanced design and small foundation requirements cut installation costs. And efficient two-stage compression with intercooling to near ambient temperature, reduces power costs all year around.

Choice of constant-speed control, automatic start-and-stop control and manual or automatic dual control affords the most efficient capacity regulation for your particular operating requirements.

For complete information on all the time-saving, cost-saving features of this 125-hp Motorcompressor, send today for your copy of Bulletin 3188.



These sizes complete the Type 40 range of air-cooled compressors

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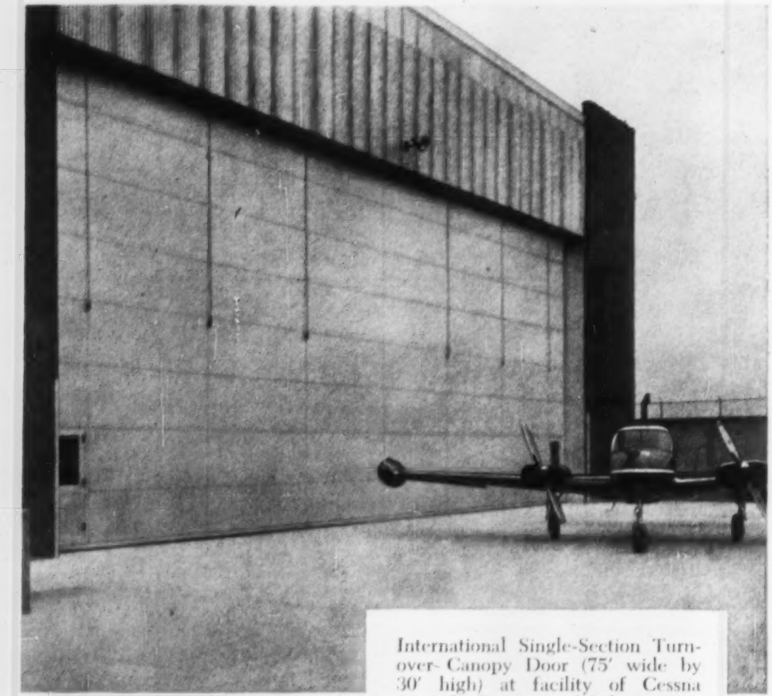
COMPRESSORS • GAS AND DIESEL ENGINES
ROCK DRILLS • PUMPS
TURBO-BLOWERS • AIR AND ELECTRIC TOOLS

I-403

11 Broadway, New York 4, N. Y.



International Single-Section Turnover-Canopy Door (75′ wide by 30′ high) at facility of Cessna Aircraft Company, Wichita, Kansas—one of five such installations to date at Cessna's Wichita operation.

Architect and Engineer:
Uel C. Ramey & Assoc.,
Wichita, Kansas

General Contractor:
C. E. Vollmer Construction Co.,
Wichita, Kansas

WHERE DOORS MUST DELIVER top-flight PERFORMANCE

OPERATING DEPENDABILITY plus rock-solid strength are prime requirements of doors serving today's aircraft builders and at most other modern industrial plants. International engineers every such door to rule out fouling or jamming, to *stay* weather-tight and fire-resistant, under *any* climatic and service conditions.

See Complete Catalog in Sweet's Industrial Construction File No. 7a

INTERNATIONAL SERVICE

INTERNATIONAL STEEL COMPANY

2110 EDGAR STREET
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AISC

Publications

Movie on plastering—"New Horizons in Plastering," a 16-mm, 20-min sound-color film, shows machine-application techniques for three vermiculite products—plaster, acoustic plaster and concrete. Fireproofing and spandrel wall construction are included. No charge. Speaker can usually be furnished also. VERMICULITE INSTITUTE, 208 S. LASALLE ST., CHICAGO 4, ILL.

Asbestos conductors—A 4-page pamphlet suggests a new method for laying communication conduits, employing cement-asbestos ducts and plastic couplings. Highlights of the technique include placing layers of ducts in contact, thus simplifying the backfill operation. Pneumatic rodding of the conduit ducts and low maintenance of the completed line are also described. JOHNS-MANVILLE PLASTIC COUPLINGS, 22 E. 40TH ST., NEW YORK 16, N. Y.

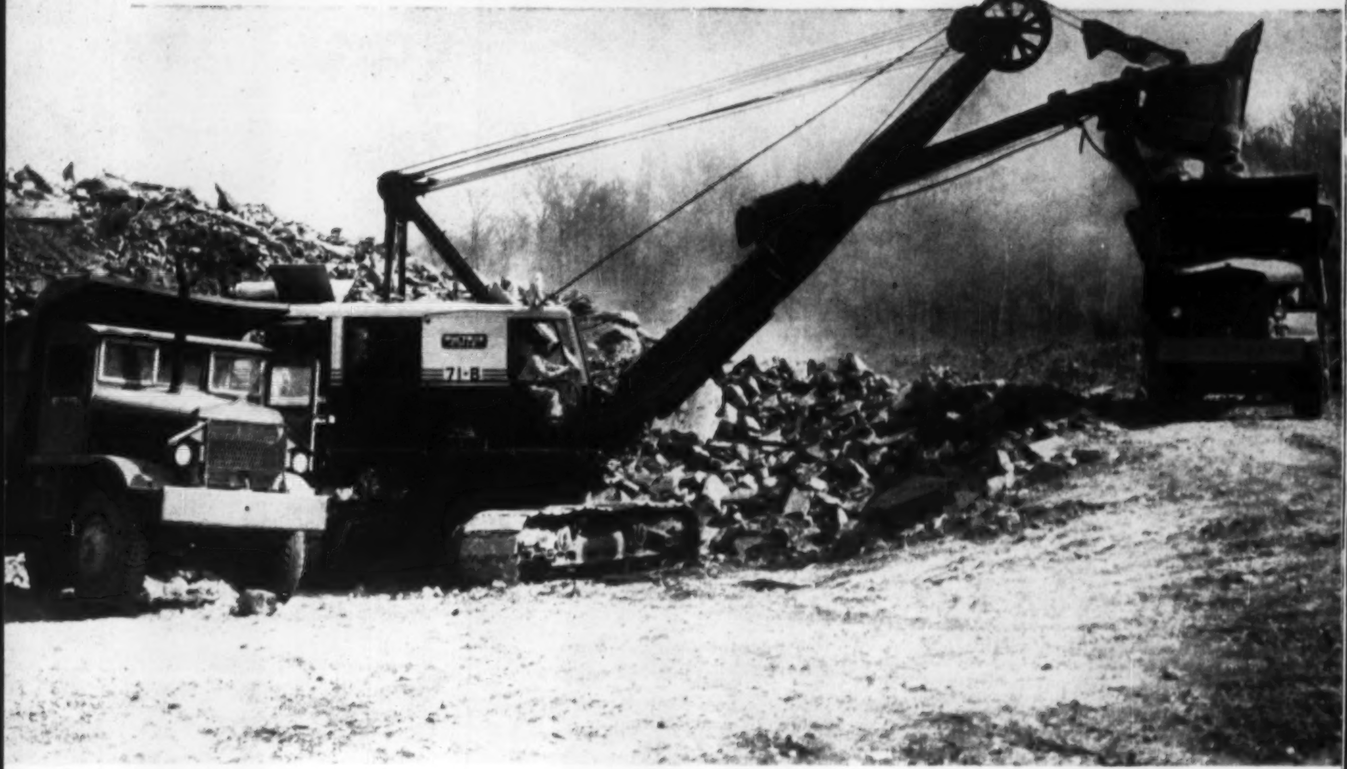
Easy reading on plastics—Beginning with such fundamental questions as what are plastics, how are plastics made, and how are they turned into products, a 46-page booklet gives basic facts on the sources and production of plastics. Included in the illustrated booklet is information on plastics' big four: phenolic, vinyl, polystyrene and polyethylene. BAKELITE CO., DIVISION OF UNION CARBIDE AND CARBON CORP., 260 MADISON AVE., NEW YORK 16, N. Y.

Insulation adhesives — Performance characteristics and advantages of water-base adhesives and protective coatings for industrial insulations are described in a 4-page folder. Also tabulated are uses, application methods, colors, weights and Flintkote's nomenclature for a group of these products, including asphalt, tar, resin and rubber-base emulsions and dispersions. The folder, I-F No. 46, is obtainable from the FLINTKOTE CO., 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Soil-testing equipment—A 128-page catalog released by Soiltest, Inc., contains descriptions and illustrations of over 1,350 items of apparatus for engineering tests of soils, concrete asphalt and construction materials. Included are suggested laboratory layouts with equipment lists and excerpts from ASTM and AASHO specifications.

An extensive section is devoted to soil mechanics apparatus and basic sampling and preparation equipment for the testing machines for triaxial, confined compression, direct shear,

How a Reputation Was Earned for Low Upkeep and Big Output



ONE reason why Bucyrus-Erie excavators are so popular is their reputation for low maintenance. It's a reputation that's been earned with advantages like these —

Bucyrus-Erie's Individual Design for each model in its line matches every component to rated capacity — machines are never stretched to create a new model. There are few wearing parts, deadweight is reduced — you get maximum digging ability per pound of weight.

There's *quality-control* of every manufacturing detail. Each steel shipment undergoes mechanical, chemical, and metallurgical tests . . . is microphotographed for close analysis. With foundry facilities unsurpassed in the industry and an extensive, modern welding shop, Bucyrus-Erie pours its own castings and makes its own weldments. Thorough control is maintained over both manufacturing processes to insure the high quality that means top performance over years of profitable service.

These are some of the factors that contribute not only to minimum maintenance, but also to big output at low cost . . . and extra years of service. See your Bucyrus-Erie distributor soon for details on machines from ⅜- to 4-cu. yd.

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SOUTH MILWAUKEE **BUCYRUS ERIE** WISCONSIN

The crane went down... but we weren't out!

Our Hartford Contractors' Equipment policy paid us $8,269.02 *(Based on Company File #HM53-2037)*

We were wrecking an old bridge to make way for a wider one.

The structure appeared sound. So we brought up our 32-ton crane, and used it for removing the bridge deck.

That wasn't such a bright idea. We'd hardly started when the abutment under the rig collapsed with a roar. The operator jumped clear as the machine toppled into the river.

It cost nearly $900 to get the machine to a shop for repairs. And over $7,300 more to fix it up. Under our Contractors' Equipment policy, the Hartford Fire Insurance Company paid these bills — a total of $8,269.02.

Who'd pick up the tab if one of *your* machines "fell in"?

Or was burned? Wrecked in a collision? Buried under a landslide?

Not you—if you had the broad protection of a Hartford Contractors' Equipment policy. It covers your equipment on the job . . . while being moved from one job to another . . . while idle between jobs. It saves you from loss caused by collision, overturn, explosion, theft, windstorm and many other hazards.

The cost of making sure you have cash when you need it for repairs or replacement is very reasonable. Get full details today from your Hartford Fire Insurance Company Group Agent or your insurance broker.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company
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Citizens Insurance Company of New Jersey . . . *Hartford 15, Connecticut*
New York Underwriters Insurance Company . . . *New York 38, New York*
Northwestern Fire & Marine Insurance Company
Twin City Fire Insurance Company . . . *Minneapolis 2, Minnesota*

California bearing ratio, consolidation and similar tests. The concrete section is devoted to a wide variety of apparatus for compression and flexure testing, slump, mixing, molding, flow, vibrating, air entrainment, volumetric measurements, curing and cement testing.

Test apparatus for asphalt and bituminous materials, agricultural soils and metals, and also a mobile laboratory are described in other sections. Write to SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO 39.

Hydraulic loaders—A 5-page circular describes the advantages of the American Econmobile hydraulic loader and two of its attachments. Available in two models, the loader is designed to carry masonry units from truck to scaffold. It can also be used for loading aggregate, casting concrete, erecting structural units, backfilling and other tasks. AMERICAN ROAD EQUIPMENT CO., 4302 NORTH 28TH ST., OMAHA 11, NEBRASKA.

Surveying—"Tips from the Surveyor's Notebook"—a new collection of short articles on unusual surveying problems and their solutions—has been published by W. & L. E. Gurley.

The 20-page pamphlet contains the articles, case histories and field tips that have created most comment and have proved most helpful to engineers and surveyors during the six years the "Notebook" has been published. W. & L. E. GURLEY, TROY, N. Y.

Tractor-shovel—Structural features of the Allis-Chalmers 1½-cu-yd tractor-shovel are covered in a new catalog (MS-1101). Also included are specifications for the shovel and a listing of interchangeable matched parts designed and engineered to the HD-6G tractor. CONSTRUCTION MACHINERY DIVISION, ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WIS.

Electric-cable splices—With pictures and text, a 12-page booklet describes three cable-splicing kits for field use in electrical and communications work. Also covered in considerable detail is the cold-setting resin used to insulate and otherwise protect the splices. MINNESOTA MINING AND MFG. CO., DEPT. D6-196, ST. PAUL, MINN.

Penstock construction—Use of mechanical field joints in construction of penstocks is described in a 20-page pamphlet. Penstocks included in this report vary in size from 30 in. to 18 ft in dia. DRESSER MANUFACTURING DIV., BRADFORD, PA.

RUBBER-BEARING Emulsified Asphalts
Now Available from All McConnaughay Licensees

McConnaughay Licensees Provide Complete Paving Service

PRACTICAL EXPERIENCE in the field and continuous research on Rubber-Bearing Asphalt Emulsions, conducted in this central laboratory at Lafayette, have reached the stage at which these emulsions are now being offered to engineers interested in appraising them for any type of bituminous construction. To designate Rubber-Bearing, the letter "R" is added to the standard emulsion description. Rubber-Bearing Emulsions RS-1-R, RS-2-R, MS-R and SS-R are now available at all plants.

MILLS like Model B-14-18 (illustrated) are designed for quality-controlled production of emulsions in quantities up to 100,000 gallons per day

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ACCURATE MIXING of emulsions and aggregates according to McConnaughay specifications meets general as well as local requirements.

McCONNAUGHAY LICENSEES . . . manufacturer-contractors fully equipped to carry out the final step in coordinated service from laboratory to emulsifier to mixer to paver.

For any paving requirement, get in touch with your nearest McConnaughay Licensee or contact . . .

McCONNAUGHAY LICENSEES
Operating K. E. McConnaughay Emulsified Asphalt Plants

1. **C. C. Plumb, Elmwood Station**
   P. O. Box 65, ***Providence 7, R. I.***
2. **C. C. Plumb**
   Portland, Connecticut
3. **Albany Asphalt & Aggregates**
   75 State St., ***Albany, New York***
4. **Knight Paving Products, Inc.**
   1655 Union Rd., ***Gardenville, N. Y.***
5. **Knight Paving Products, Inc.**
   Vine Street, ***Ithaca, New York***
6. **Knight Paving Products, Inc.**
   1980 East Avenue, ***Rochester 10, N. Y.***
7. **Knight-Bitumen Corp.**
   Watertown, New York
8. **Seaco, Incorporated**
   2700 Industrial Drive, ***Columbia, S. C.***
9. **E. A. Mariani—Emulsified Asphalt**
   Hooker's Point, ***Tampa, Florida***
10. **Bituminous Materials Co.**
    Metairie, Louisiana
    Serving Alabama, Mississippi, and Louisiana
11. **Asphalt Products Co., Inc.**
    Powell Ave., ***Nashville 11, Tenn.***
12. **Bituminous Materials Co.**
    P. O. Box 267, ***Terre Haute, Ind.***
13. **Wabash Valley Asphalt Co.**
    Terre Haute, Indiana
14. **Brookman Construction Co.**
    17th & Gharkey Sts., ***Muncie, Ind.***
15. **Fauber Construction Co.**
    Lafayette, Indiana
16. **Asphalt Materials & Construction, Inc.**
    960 E. 22nd, ***Indianapolis 2, Ind.***
17. **Ready-Mix Asphalt, Inc.**
    P. O. Box 882, ***Fort Wayne 6, Ind.***
18. **Walsh & Kelly**
    R. R. #2, ***Gary, Indiana***
19. **Bituminous Materials Co.**
    416 S. Water St., ***Jackson, Mich.***
20. **Bituminous Materials Co.**
    318 Atlantic St., ***Bay City, Mich.***
21. **Emulsions, Inc.**
    Lawrenceville, Illinois
22. **Bituminous Materials & Supply Co.**
    415 Maple St., ***West Des Moines, Iowa***

    Plants:
23. ***Spirit Lake, Iowa***
24. ***Iowa City, Iowa***
25. ***Menlo, Iowa***
26. **Emulsified Asphalt Co.**
    Kuttawa, Kentucky
27. **Doherty and Swearingen Co.**
    53 Main St., ***Yarmouth, Maine***
28. **Bituminous Materials Co.**
    Escanaba, Michigan
29. **James Huggins & Sons, Inc.**
    Medford & Commercial Sts.
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Eastern Representative:
John A. Dow
157 Church St., ***New Haven 10, Conn.***

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

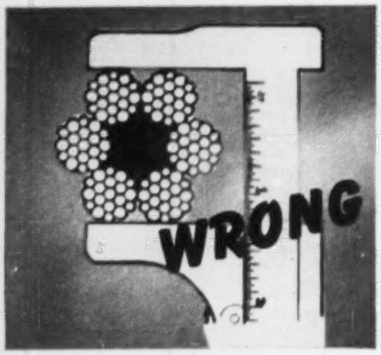
1—Penetration Macadam, 2—Open-Graded Plant Mix, 3—Open-Graded Road Mix, 4—Dense-Graded Plant Mix, 5—Dense-Graded Road Mix, 6—Mat Coat, 7—Seal Coat, 8—Sand Mix, 9—Sand Honing, 10—Patching, 11—Mastic-Mix, 12—Driveway Construction.

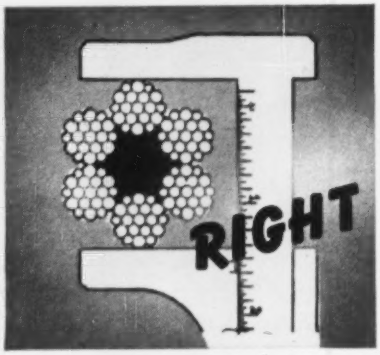
K. E. McCONNAUGHAY
LAFAYETTE
INDIANA

EMULSIFIED ASPHALT PLANTS AND PROCESSES

Tuffy® Tips

If Present Rope Is Correct Size, Measure with a Caliper

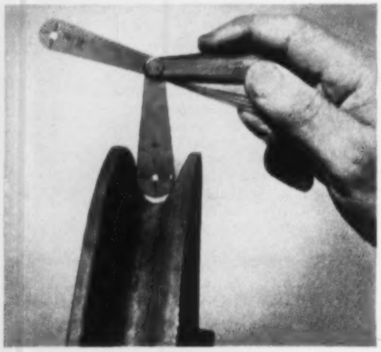




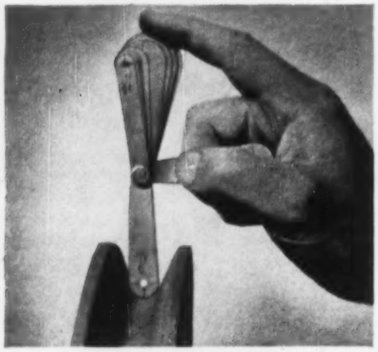
Measuring the Wrong Diameter is a common mistake that some buyers make when they order replacement rope. When the rope arrives, it turns out to be too small—even though a machinist's caliper was used to assure accuracy. It's an easy mistake to make, but it's just as easy to remember the *right* way and be sure you get the right size rope. Otherwise both the safety factor and service life of the rope will be reduced.

Measuring the Right Diameter is the simple step shown above. Measure so that a single strand is on each of the adjustable edges of the caliper—*not* two strands that measure as a flat side. The actual diameter of a wire rope is the same as that of the circle required to circumscribe it. The diameter of a wire rope is an important factor in determining the safe working load to be handled by your equipment.

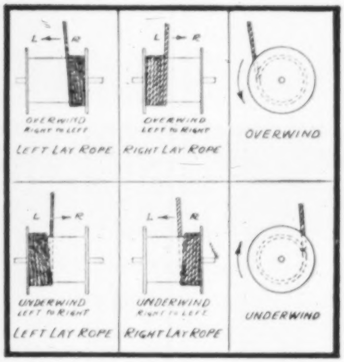
How To Measure Groove Diameter



Shown above is the WRONG way to measure the groove diameter. The result—shorter life of the wire rope you buy. Note that only the sides of the rope will bear on the sheave. In a relatively short time this will squeeze the rope out of round and set up destructive friction and stresses on the rope strands and wires. New rope is oversize and diameter of grooves on sheaves and drums should be slightly larger.

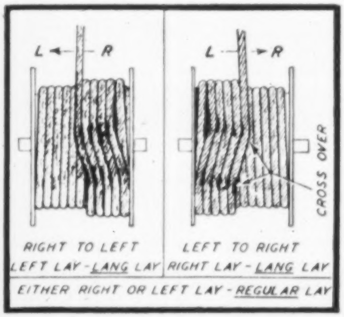


Shown above is the *CORRECT* way to measure the groove diameter. It is a simple thing to do and will give the rope you buy a chance to deliver all the service it possibly can. Remember a wire rope is composed of many closely correlated working parts and sheave grooves which are too large or too small throw them out of alignment. Just like any other working part on a machine, wire rope cannot do its best if it is misfitted.


L ← → R
OVERWIND RIGHT TO LEFT
LEFT LAY ROPE
L → R
OVERWIND LEFT TO RIGHT
RIGHT LAY ROPE
OVERWIND
L → R
UNDERWIND LEFT TO RIGHT
LEFT LAY ROPE
L ← R
UNDERWIND RIGHT TO LEFT
RIGHT LAY ROPE
UNDERWIND

Rope Lay for One Layer Winding

These diagrams show when it is best to use right lay or left lay rope on one-layer winding. The direction of winding is determined by standing behind the drum, looking toward the direction of the rope travel.


L ← R
L → R
CROSS OVER
RIGHT TO LEFT
LEFT LAY - LANG LAY
LEFT TO RIGHT
RIGHT LAY - LANG LAY
EITHER RIGHT OR LEFT LAY - REGULAR LAY

Rope for Two Or More Layer Winding

When a rope winds on the first layer across the face of a drum, it usually travels in a uniform pattern. But when it reaches the flange of the drum, the rope rides on the last strand of the first layer for one turn. Then, it slips into the grooves between each course of rope on the first layer. To move across the drum in this manner, the rope actually winds *back* a turn in each revolution. Then it must jump across *two* grooves in the first layer. This always occurs on the even-numbered layers, and often causes crushing. This abuse is minimized by use of properly designed grooves, spacers and lifters.

In Shoes Or In WIRE ROPE Misfitting Is Hard On The Pocketbook

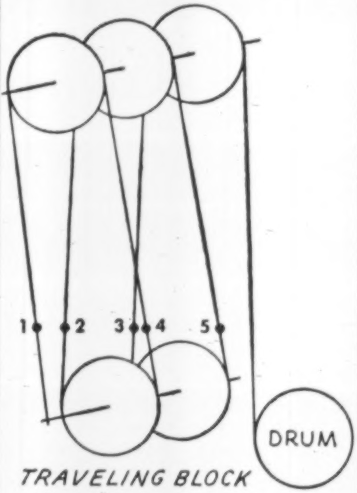
Replace Worn Sheaves

Check for sheaves that have been badly worn. Sheaves that have grooves corrugated by the rope lay impression should be replaced immediately before installing new rope. Since rope creeps to a certain extent on sheaves these grooves can actually cut the strands as the rope runs over. This will greatly reduce service life of *any* wire rope.

Breaking In New Rope

After a wire rope is installed, it is advisable always to run the new wire rope with a light load or with no load for a short period of time. This "breaking in" process gives the component parts of the rope an opportunity to adjust themselves to the conditions under which the rope is to operate. The time spent "breaking in" a wire rope will pay dividends in extra useful rope life.

How To Count The Number of Parts Supporting the Load



Draw an imaginary line across the parts of the rope supporting the load.

The wire rope on many machines is not used in a single or direct pull. It is often reeved through sheaves, which gives a mechanical power advantage.

Send For Free Chart Which Allows Easy Figuring of Actual Stress On Rope For Any Given Piece of Machinery Reeving From One to Eight Parts.

Don't Say "Wire Rope" — say Tuffy

Tuffy Slings & Hoist Line

Machine braided slings that consistently keep costs down, keep safety records clear. A tough, flexible hoist line. A balanced team.

Tuffy Scraper Rope

Special construction assures resistance to drum crushing and the strains caused by angle pulls through swivel-mounted sheaves, rapid line and shock of load on slack line.

Tuffy Dragline

Outer wires offer large area to resist abrasion . . . inner structure made for flexibility. The result is a rope that casts freely, fights off shocks and line pulls.

Tuffy Dozer Rope

Get extra dozer rope service — mount a 150′ reel of Tuffy on your dozer, feed through only enough to replace damaged section on the drum. ½″ and 9/16″.

Your Tuffy Distributor Works to Learn Your Business

When new equipment comes out, he has already checked into it . . . finding out why it does the job better, how it works. Why? Because he's interested in earning your continued patronage. And part of that service is helping you out with fast answers *when* you need them—especially right answers to your wire rope problems. Give him a call.

union Wire Rope corp.

2228 Manchester Avenue Kansas City 26, Missouri

4

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand

Changing basic designs to match the specifications of different machines or models is a fast, easy routine at Cleveland Trencher Company, Cleveland, Ohio—thanks to Kodagraph Autopositive Paper.

8 modifications of the original design

without a minute wasted on redrafting

In the case of the transmission design drawings shown above, eight separate modified designs were required. So a like number of Autopositive Paper intermediates were made *instead of redrafting time after time.*

To each of these intermediates—with dense black photographic lines on a translucent base—the draftsman only had to add the variables and correct dimensions.

The Cleveland Trencher Company finds other important uses for Autopositive Paper intermediates—uses them instead of valuable original drawings in direct-process print production and in the "changes pending" file to show proposed revisions.

Another drafting-room favorite is Kodagraph Autopositive Film, which speeds the production of parts books illustrations. Complicated paste-ups are reproduced in exceptionally fine detail on this translucent film, which is used to produce direct-process prints or offset plates.

No negative step

Kodagraph Autopositive Paper and Film produce *positive* intermediates directly *in ordinary roomlight.* Only standard print-making equipment and familiar photographic processing are required. *A fast, easy routine for you or your local blueprinter!*

Kodagraph Reproduction Materials

New booklet is jam-packed with valuable tips on saving drafting time, protecting drawings, getting better prints.

MAIL COUPON FOR FREE BOOKLET

EASTMAN KODAK COMPANY 67-9
Graphic Reproduction Division, Rochester 4, N. Y.

Gentlemen: Please send me a free copy of your new booklet on Kodagraph Reproduction Materials.

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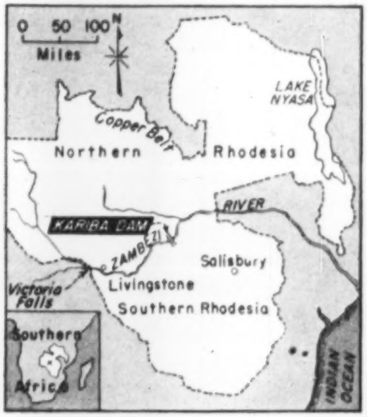
Kodak
TRADE MARK



Central Africa:

Needed more power to back industrial boom.
Had power potential from Zambezi's big flows.
Engaged dam expert Coyne and got World Bank loan.
Result: 1.2 million kw, biggest man-made lake as . . .

400-Ft-High Arch Goes Up Across 1800-Ft Kariba Gorge

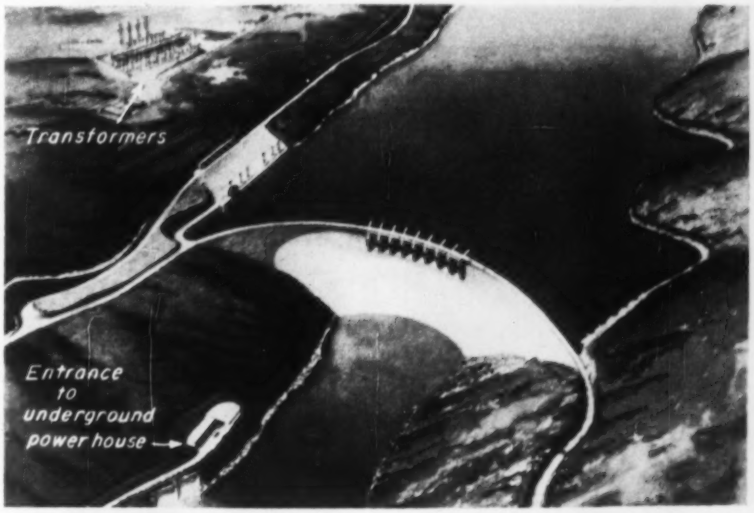
Spurred by receipt of an $80-million World Bank loan, the largest sum ever advanced by the bank for a single project, work is under way on the Kariba power dam in Northern Rhodesia. Largest hydroelectric project yet attempted in the formerly "Dark Continent", Kariba Dam will be located on the Zambezi River some 250 mi downstream from Victoria Falls. The main contract—$71 million for the dam itself—has just been awarded to Impresit, an Italian group with South African affiliates.

The need for such a dam has been increasingly apparent in recent years. With greater power demands coming from the Northern Rhodesian copper belt, and the growth of secondary industry power requirements in Southern Rhodesia outstripping increased thermal power generation, fast action to correct the growing imbalance was needed. Ultimate completion of the Kariba project, with a capacity of some 1.2 million kw, is expected to fill the needs of the region until 1972.

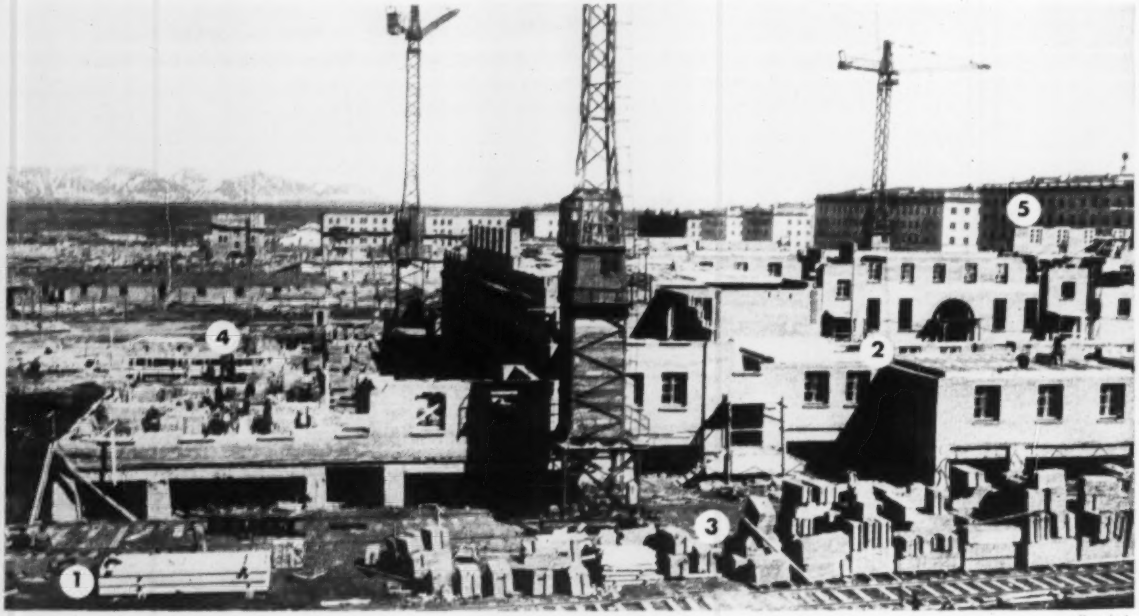
The dam itself, designed by Andre Coyne of France, will be a 400-ft-high arch and will span an 1,800-ft gorge on the Zambezi. From a group of five possible sites, the final choice was based on ease of river diversion and the excellent rock foundation at shallow depths indicated by subsurface explorations. The presence of good rock over the entire width of the channel was a most important finding, in view of the size of the structure—1,400,000 cu yd of concrete will go into dam.

One of the major rivers of the world, the 2,200-mi long Zambezi exhibits violent seasonal fluctuations in flow. The hydrology of the watershed is characterized by sustained rainfall for a period of three to four months, with the rest of the year remaining almost rainless. Present estimates of

CONSTRUCTION HAS TO MOVE FAST to get foundation work in during dry weather, since wet season flows hit 450,000 cfs in . . .



KARIBA GORGE, where long arch dam will hold back world's No. 1 man-made lake, 140 mi long and eventually turn out 1.2 kw of badly needed power.



Sovfoto

Russians Prefabricate Walls and Floors

Prefabrication is speeding a housing project in the new iron and steel center, Norilsk, U.S.S.R., near the Arctic Circle. Hammerhead cranes, riding on rails alongside the building, erect the pre-assembled components—precast concrete floor framing (1 and 2), 20-in. thick brick wall panels (3 and 4) and windows (5). This type of construction was described in detail by U. S. homebuilders who returned from a tour of Russia last month (ENR Aug. 9, p. 21). Labor consists of settlers from Moscow.

flow in the rainy season are in the neighborhood of 450,000 cfs.

Kariba Dam, while not primarily intended for river regulations, will nonetheless provide a great deal of control by impounding peak flows within a lake 140 mi long. With a capacity of 140,000,000 acre-ft, 4½ times that of Lake Meade behind Hoover Dam, this will be the largest artificial lake in the world—even bigger than the planned 105,000,000-acre-ft lake behind proposed Aswan High Dam. With an average annual flow of 35,000,000 acre-ft, even the mighty Zambezi will take a long time to fill the reservoir. To get into operation without having to wait for complete filling of 140-mi-long "power pool," a pair of temporary intakes will be built to operate at a reduced net head of 150 ft.

Viewing the anticipated growth pattern of the region, Kariba's planners figure on doing the job in two stages—the first, expected to hit its peak of 0.5 million kw by 1963, calls for an underground power station with five 100,000-kw turbo-alternators with Francis turbines. Estimated cost of the initial phase is $255 million.

Ultimate completion will be paced by power demands—Kariba is expected to be turning out 1.2 million kw by 1971. This will be accomplished by adding another 100,000 kw unit to the original powerhouse and by the construction of a second underground installation opposite the first, good for 0.6 million kw. These latter features will up cost of the project to an estimated $316 million.

Convinced that its efforts to muster financial backing for the project would succeed, the Central African Federal Government began work on the Kariba scheme in June of last year. Taking advantage of the low-water period from June to November, construction forces have already completed initial cofferdams and diversion works. A $10 million contract recently awarded to the British firm of Richard Costain Ltd. will provide housing in the area adjacent to the Kariba site. Another contract for $5.5 million worth of additional diversion and cofferdam work went to the British Cementation Co.

Despite delays resulting from late, near-record floods this spring, the work started last year is back on schedule. The rigorous pace being set indicates that some power will begin flowing from Kariba by 1960. In the meantime, to supply the power to the copper belt in Northern Rhodesia and the concentration of secondary industry to the south, a transmission system involving 935 mi of overhead lines will have to be constructed through the heavily wooded areas of the region.

Fresh-From-Salt

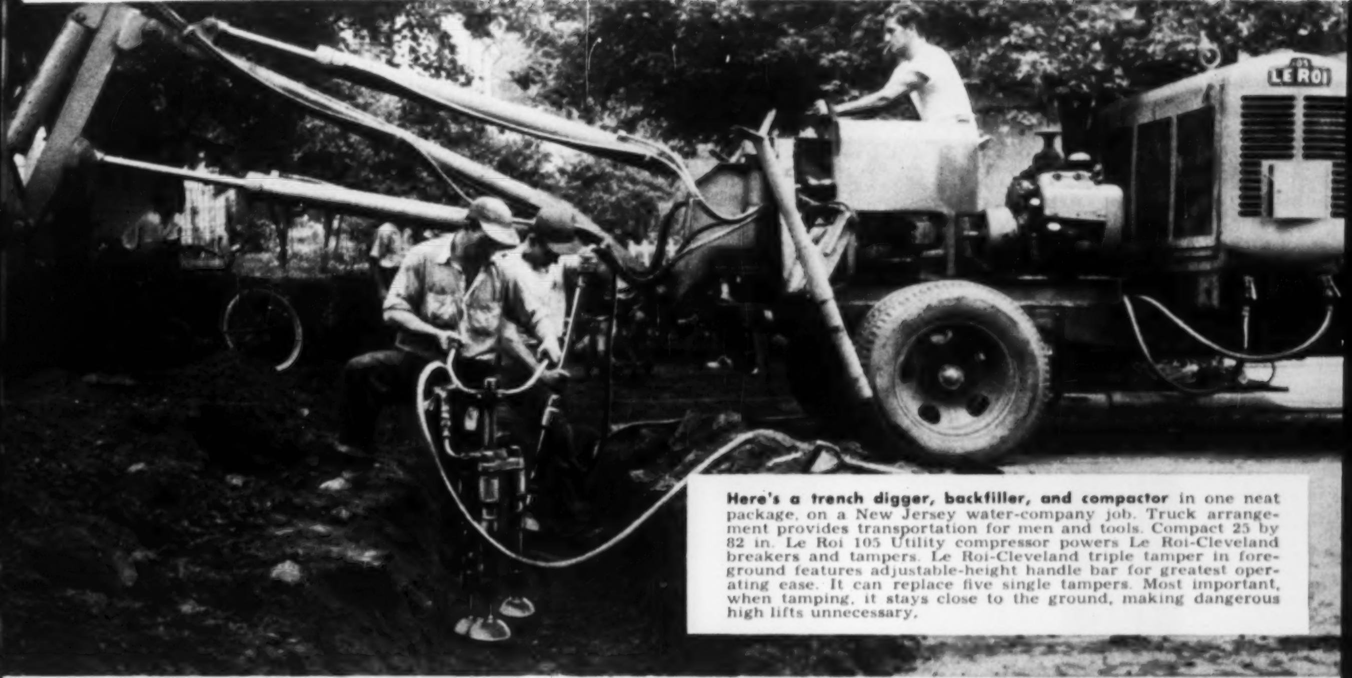
Potable water from brine is given world-wide push

Conversion of ocean brine to drinking water—long viewed as the world's hope for an unlimited water supply—is making news in four widely separated points around the world:

The Dutch West Indies island of Aruba is constructing its first plant, while in the eastern hemisphere, Kuwait on the Persian Gulf is expanding an earlier installation. Pilot set-ups are on the move too—one study is about complete in South Africa, with favorable results, and another has just gotten off the ground in Israel.

• Aruba Builds 2.7 mgd Plant

More water for home and industrial use will soon be available on the little



Here's a trench digger, backfiller, and compactor in one neat package, on a New Jersey water-company job. Truck arrangement provides transportation for men and tools. Compact 25 by 82 in. Le Roi 105 Utility compressor powers Le Roi-Cleveland breakers and tampers. Le Roi-Cleveland triple tamper in foreground features adjustable-height handle bar for greatest operating ease. It can replace five single tampers. Most important, when tamping, it stays close to the ground, making dangerous high lifts unnecessary.

Work-Saving Air-Tool Applications

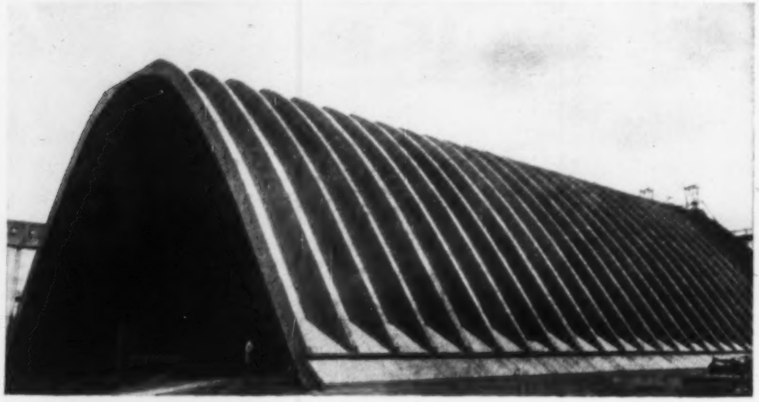
by LE ROI

Gas company employee breaks through tough 12-in. concrete. To speed emergency repair work, this utility chose the maximum shattering impact of a Le Roi-Cleveland 52 paving breaker. Work speed, however, was only one consideration. Low-cost operation was important too. The 52's piston air-cushion reduces internal part wear, makes handling easier.

Highway construction in Mexico is frequently for the birds, or literally could be as this picture indicates. Two operators pictured on this treacherous perch rely on easy-handling Le Roi-Cleveland sinkers, as do 38 others on job. To complicate the fatigue problem, this area around Chilpancingo is often subject to extreme heat. Sealed dust-proof feature is one reason why these tools produce the powerful, constant rotation needed for fast drilling. →

On this $1,600,000 Cleveland sewer job, Le Roi-Cleveland clay diggers set a daily 20-ft. pace. The C-10 clay spade was chosen because a great deal of handling and lifting were required. Operators appreciated a well-balanced tool for this rush job. The spade also is free from bumps, so that operators can get a firm grip and still work close to tunnel walls. ↓

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Cleveland air tools, Tractair, portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.



Parabolic Panoply for Chemical Heap

Parabolic contour of chemical storage building in Haifa, Israel, is designed to shelter a 25,000-ton pile of ammonium sulfate without enclosing a lot of waste space. Reinforced concrete ribs 7½ ft c-c and 6-in.-thick shell span 100 ft, rise 53 ft at center. Reinforced with 300 tons of steel, 2,000 cu yd of concrete for the 360-ft-long structure were placed in twelve 30-ft pours, on movable formwork. Solel Boneh, Ltd., built it, supervised by designers, Cementation Co., Ltd., of Doncaster, England.

island of Aruba in the Dutch West Indies, just off the coast of Venezuela. Multiple-effect evaporation emerges as the solution to a water shortage which has plagued the island's populace, now numbering 55,000, since Aruba was discovered in 1499. The evaporation process, which is the same process currently employed at Kuwait on the Persian Gulf, will convert ocean brine into a 2.7-mgd water supply for the island.

Of eight schemes considered, multistage flash evaporation was deemed most feasible for the large installation. Small systems of this type turn out drinking water for $3 per mg. Cost of production in the proposed setup will be somewhat less, and about half the present price on the island. Construction of the plant, expected to cost $10 million, will be undertaken by Singmaster & Breyer, New York, who also designed the facilities.

The present water supply, a scant 16 gpd per person, is obtained from wells and cisterns on the island, supplemented by trans-shipped mainland water. And what water is available, is priced on a par with bread and meat. Completion of the new project, expected by September of 1958, will increase the per capita supply by 40%.

• **Industry also helped**—Benefits of the new water source are not confined to the drinking fountain, according to island officials. Industry will have more power available in addition to the increased water supply—a 20,000-kw power plant was included in the plant design, with only a small percentage increase in steam requirements. The only major industry on the island at present is the Lago refinery, a subsidiary of Esso, but the Aruban government expects chemical and other industries to become interested now.

Another facet favoring the move for more water is the anticipated growth of tourist trade on the West Indies island. With this in mind, the plant has been designed for expansion any time during construction or after completion.

• Kuwait Announces Expansion

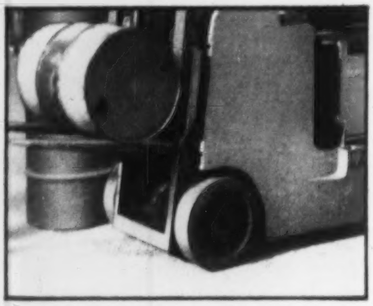
While Aruba gets under way with its new plant, the government of Kuwait announced plans to expand its present conversion facilities. Built three years ago (ENR Apr. 16, 1953, p. 80) to supply 2.5 mgd, the expanded plant will have twice its original capacity when completed.

Estimates of Kuwait water needs have been revised upward since the 1949 installation was completed—water was so scarce then that consumption figures scraped close to the minimum sustenance level. Paced by the increased supply to be made available by the expansion, officials are figuring on improving distribution facilities—present supply scheme involves tank truck delivery from a number of centrally located towers. Ultimate aim is direct supply to individual buildings and homes.

Despite the fact that the Kuwait setup is converting the waters of the

DO RUTS AND POTHOLES RUIN YOUR PLANT FLOORS?

The small hard wheels of heavy loaded fork lift trucks, hand trucks and impact from heavy falling objects often ruin industrial floors made of wood, asphalt or even concrete.



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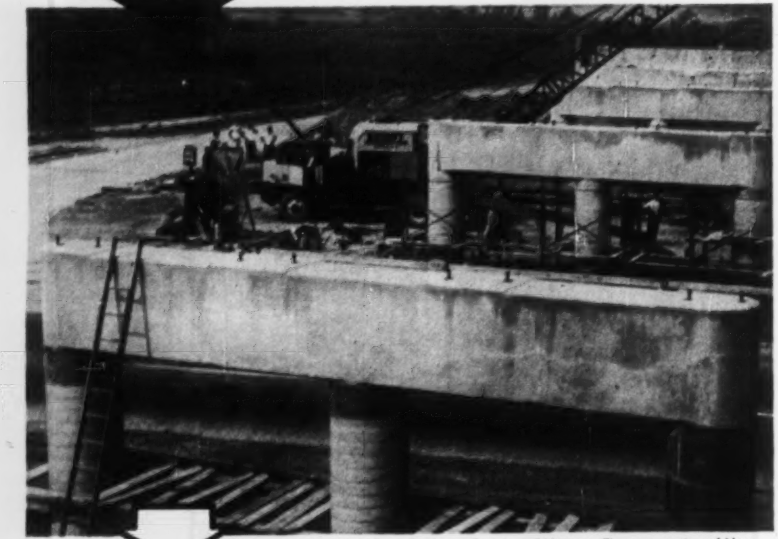

Overpass bridge—West River Parkway Crossing of Niagara Thruway section of New York State Thruway, near Grand Island, N. Y. Hendrick Construction Co., contractors.

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Persian Gulf (world's saltiest at 42,000 ppm dissolved solids) into potable water with dissolved solids less than 100 ppm, significant improvements in the process have been made. The new units to be installed, four-stage flash evaporators, take up 25% less space than their earlier counterparts, of the triple-effect "shell and tube" type.

• Israel Starts Pilot Plant

Getting into the pilot plant stage, a process for salt water conversion is a bid to solve the Negev Desert irrigation problem. The plan, involving conversion of brine by freezing and dissolved solid separation, is now the center of attraction in the irrigation picture—with diversion of the Jordan still at an international impasse.

The freezing process, once veiled as a Soviet military secret, was developed and patented in 1931 by Alexander Zarchin, a Russian engineer who has lived in Israel since his escape from behind the Iron Curtain. Tests conducted at the University of California affirm feasibility of the process.

Besides the diplomatic and hydrological considerations which cast a pall on the Jordan River plan, Zarich's conversion setup looks good from several other angles. Large quantities of by-products, such as potassium from Dead Sea water, can also be recovered by the process according to Zarich. And no point in the Negev is further than 32 miles from a potential salt water soprce.

With a government appropriation of $81,000 for the pilot plant, studies can begin within six months. Zarich pointed out that a full scale operation, good for about 7 mgd, could be built within 2 or 3 years. Such a plant would be run by electric power, with the use of solar heat possible provided certain modifications in the process prove successful.

• African Study Favorable

African gold mines—where dewatering to prevent tunnel flooding pumps billions of gallons of brackish water to the surface each year—may become a new source of water supply for industry and agriculture. A 20,000 mgd pilot plant, set up by South Africa's Council for Scientific and Industrial Research, has come up with a method of reclaiming the waste water at a cost of $3 per mgd. According to Dr. W. S. Rapson, pilot studies have provided enough information to justify a green light for the design of large scale plants.

Nicaragua Will Ask Foreign Bids on $5-Million Port Job

The Nicaraguan Port Authority has announced that before December of this year, it will solicit bids from foreign firms for the improvement of the Pacific port of Cortinto.

The request for bids on the estimated $5-million project, awaits only the formal engineering and specification report from Tippetts, Abbett, McCarthy, and Stratton of New York and Panama. Principal details of the report have been completed and are now being put into final draft.

The project includes construction of a 1,200-ft pier, two warehouses having 125,000 sq ft of floor space, loading facilities, fire protection and water installations. Dredging of the harbor will permit accommodation of ships with drafts to 35 ft.

Actual construction is expected to begin during January 1957. Completion time is set at 28 months, and the project will be financed in part by a $3.25 million World Bank loan.

International Consulting Combine Formed in Canada

Three firms of consulting engineers—one Canadian, one British and one American—have pooled their resources to form Allied Consultants of Canada, Ltd., with head office in Toronto.

Announcement was made by Brig. Murray Dillon, president of M. M. Dillon and Company, London and Toronto, who will head the new group. It also includes Sir William Halcrow and Partners, of London, England, and Edwards, Kelcey and Beck, of New York City.

Brigadier Dillon said staffs of the three participating firms total more than 1,000 engineers and technicians.

Plan $42 Million Road For Venezuelan Capital

As part of a program to construct 50 miles of boulevards and expressways, highway officials in Caracas, Venezuela, are readying plans for a five-mile, $42-million crosstown expressway that will connect with the La Guaira superhighway from the coastal seaport.

The project includes a huge traffic interchange at the junction with the proposed Del Guaire expressway, and a 1,700 ft tunnel.

Studies are also under way for a three-mile tunnel through Mount Avila to give Caracas an additional connection with the coast.

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Mystic Seaport Accessions Bldg., Mystic, Conn. Lovello & Naccarato, Contractors. Architect: Francis D. Rogers, Rogers & Butler, NYC and O. E. Liebig, New London. Photo by Martel.

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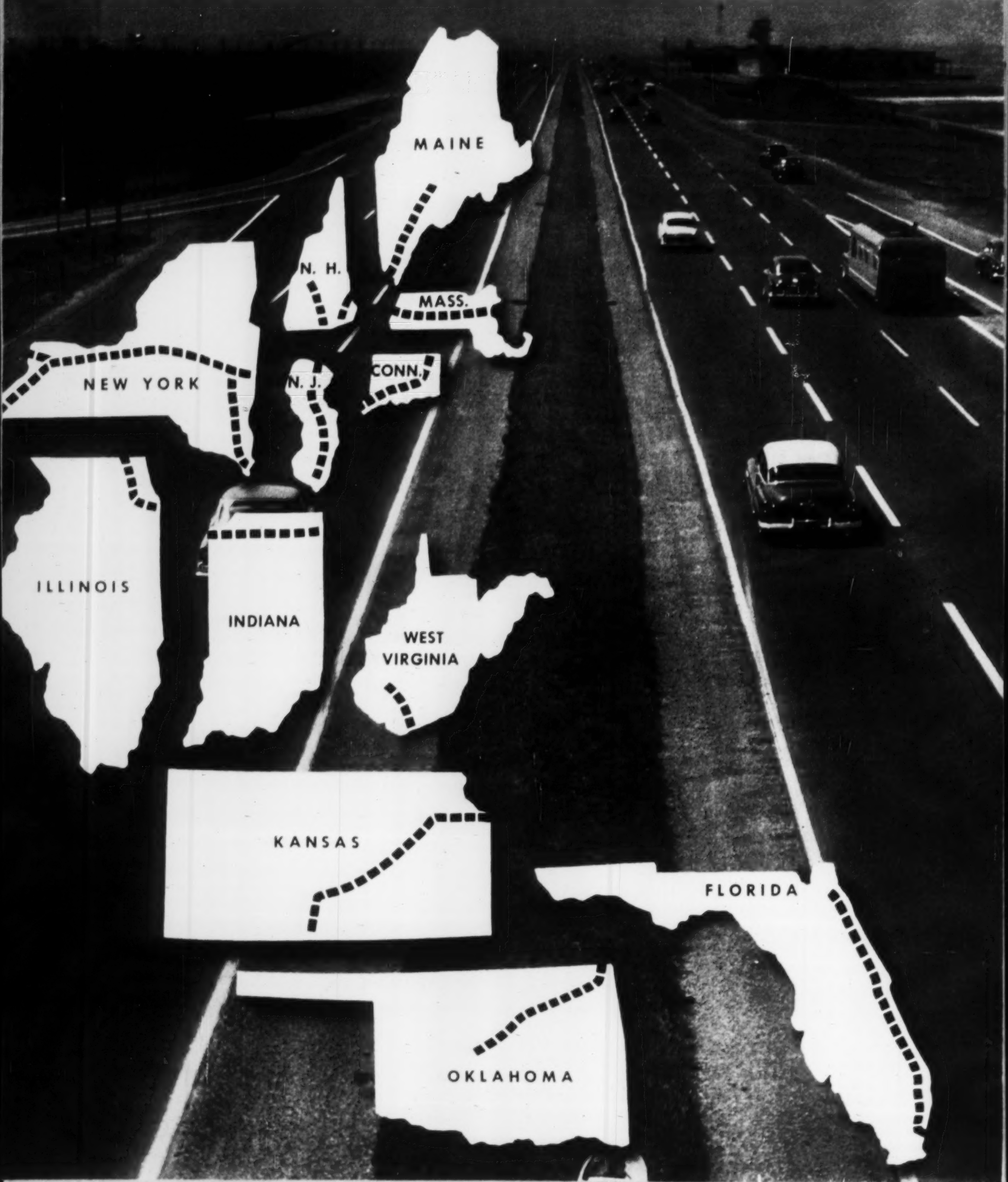
How Liberty helped contractors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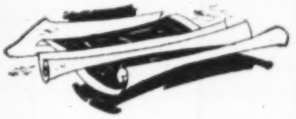
cut costs on 12 superhighways

Contractors have found that Liberty Mutual's loss prevention ideas save big money. That's why Liberty Mutual is one of the leading writers of compensation and liability insurance for highway jobs.

For instance, Liberty insured part of all 12 of the major superhighways pictured here. In each case, Liberty Mutual Loss-Prevention Engineers carefully analyzed potential hazards long before work started. As work progressed, they were constantly on the job — making test blasts; planning detours and barricades (one-quarter of all public liability cases against contractors involve public vehicles striking barricades or equipment); advising on equipment movements; and assuring good housekeeping.

Most of the accidents reported on road jobs are the result of negligence. You can see the importance of having an alert, expert team of loss prevention engineers working with you on every job. Liberty knows how to help you prevent accidents — and that means lower insurance costs, less equipment damage, fewer idle workmen, and less down-time. It pays to insure with Liberty Mutual.

10 WAYS LIBERTY MUTUAL CUTS INSURANCE COSTS ON CONSTRUCTION JOBS



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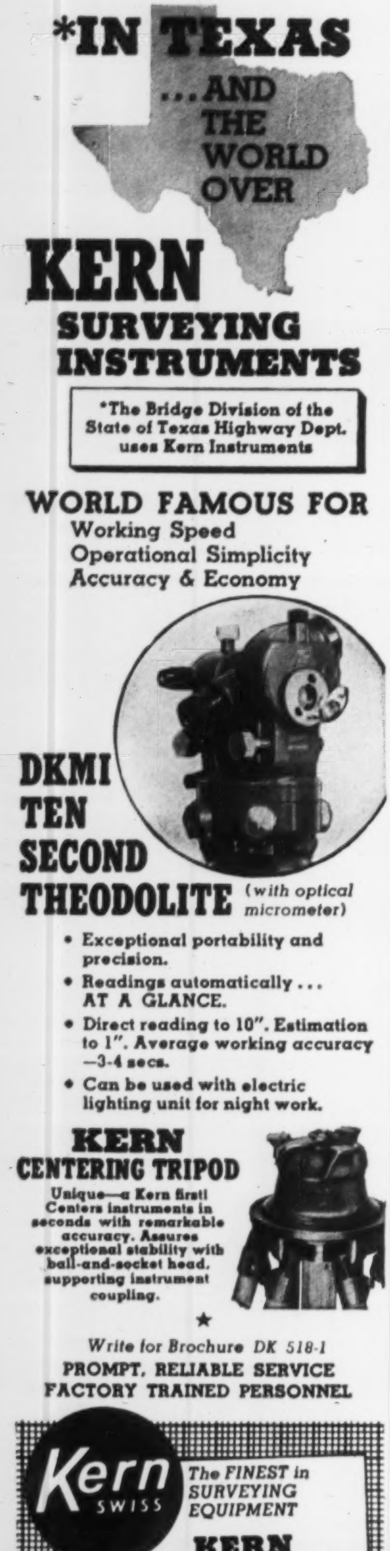
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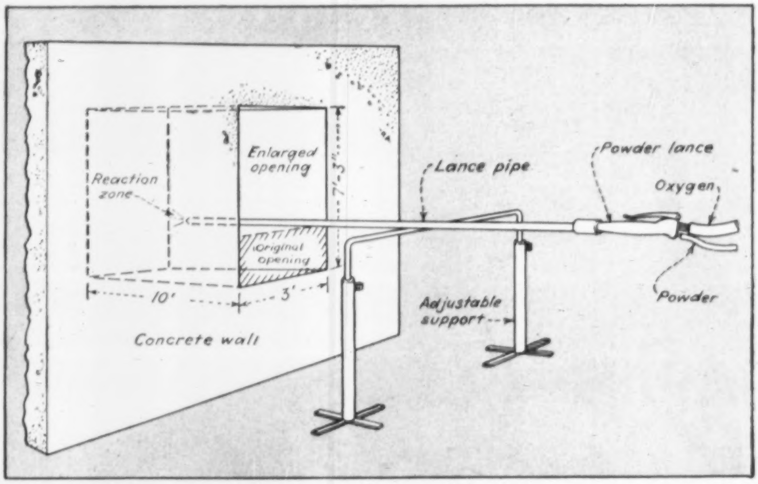
MAMMOTH CHUNK of concrete removed from opening on the steel frame shown measures about 3 x 4 x 10 ft, weighs approximately 9 tons.



NOVEL METHOD features 21-ft lancelike pipe on adjustable supports through which is fed an inflammable powder mixture. Upper portion of opening was removed intact.

Heat Speeds Removal of Concrete

By applying heat and actually melting concrete away, Bowser-Morner Testing Laboratory, Dayton, Ohio, was able to open a hole 3 x 7.25 x 10 ft in a 10-ft-thick concrete wall, fast and at low cost. Heavy reinforcing in the wall and the fact that a difficult tool position was required ruled out percussion and rotary-core drilling as too costly.

Developed by Linde Air Products Co. (a division of Union Carbide and Carbon Corp.), the methods is called the "powder cutting process". Heat is applied by a flame at the end of a lance consisting of a 21-ft length of ½-in. black-iron pipe. A powder mixture of finely divided aluminum and iron is fed through the pipe under nitrogen pressure to produce a 6,000 F flame when brought together with oxygen at the lance tip. The velocity of the flame forces the molten concrete out of the cut. Any that remains is blown out.

As work progresses the lance pipe is consumed by the heat. After it is shortened to a certain length it is removed and a new section added. The short pieces are then welded into full lengths for reuse.

The procedure consisted in going in through a small original opening in the wall, cleaning out this initial hole, then cutting both sides of the upper section. This left, in effect, a suspended block under which workers placed two I-beams with a metal backstop. They now made the final cut, which dropped the block on the beams ready to be winched onto a trailer bed for removal as one solid piece.

A lance operator, welder, and man

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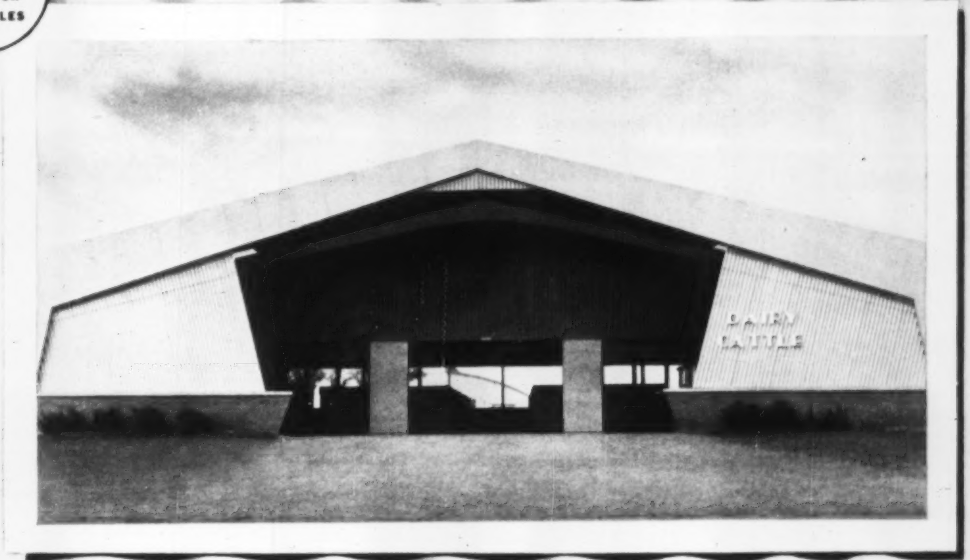

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Builders and designers who know the advantages of ASBESTONE are attracted by this unusual use of natural shadow lines which complement the bold lines of the modern truss roof. State Fair officials are so pleased with the quality, practicability and attractiveness of Gold Bond Corrugated ASBESTONE that they are planning to use it on six additional buildings.

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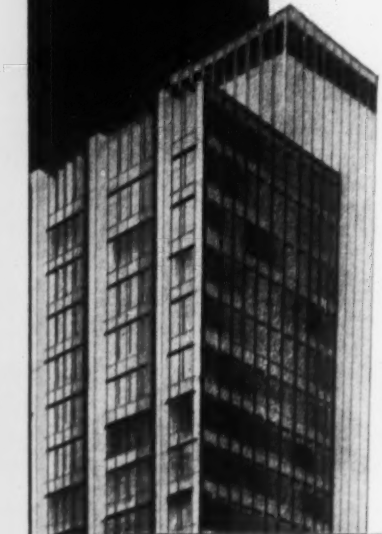

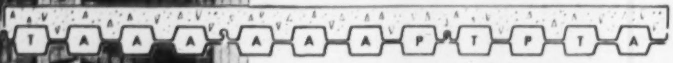

New Inland Steel Building foretells office life of tomorrow

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For more information on the interesting Inland Steel Building design, or for Catalog 270 which describes Milcor Celluflor construction, write to address listed below.

Cross section of the Milcor Celluflor installation in the Inland Steel Building, showing the cells and the 2-inch concrete fill which covers them. The letters in the cells show the pattern of use developed for this installation. (Key: A-Air; P-Power; T-Telephone.)

Milcor Celluflor provides variable capacities to handle any type of electrical need. Cells are spaced on 6-inch centers to permit the installation of service outlets at virtually any point on the floor.

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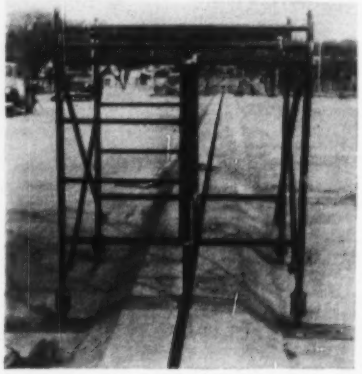
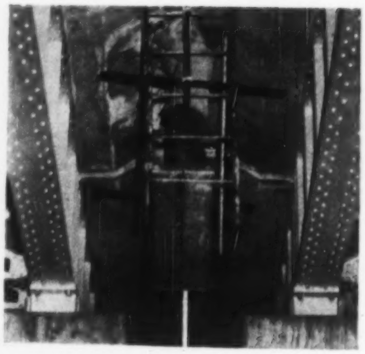
to handle the oxygen cylinders comprised the three-man crew. Total time required for cutting, removing the chunk, and cleaning up was 250 man-hours.

If the process is performed in confined quarters, exhaust facilities are necessary to carry off smoke and dust caused by combustion.



Above . . .



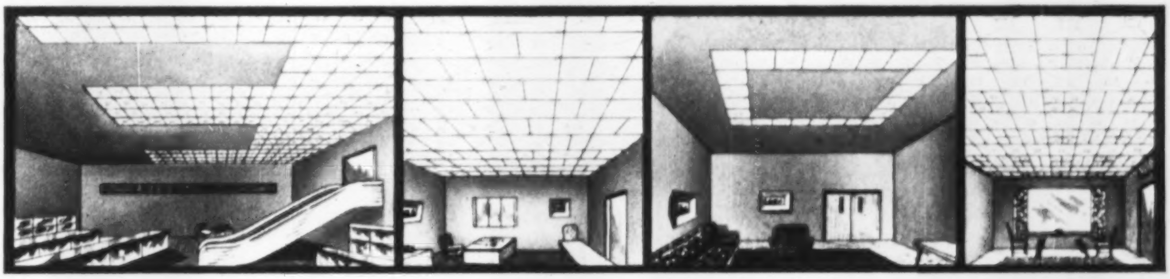
. . . Below

A small opening was all that Anderson Electric Co., of Green Bay, Wis., needed to hit upon an unusual solution to a scaffolding problem on a bridge at Green Bay. Electricians had to work on cables strung on the underside of the main deck along a centerline expansion joint, but rail traffic at a lower level made it next to impossible to support a work platform from below.

Anderson resolved the difficulty neatly by passing two 10-ft scaffolding pipes through the 3-in. joint, clamping the upper ends to a small rolling tower on the deck astride the joint, and fastening a work platform to the lower ends. The below-deck workman could then be trundled anywhere along the length of the bridge.

Versatile

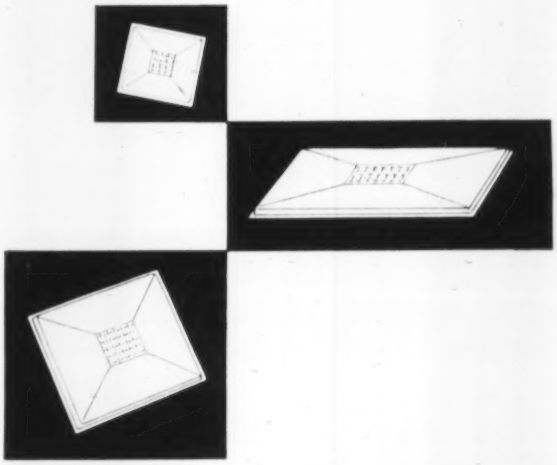
LUMA
TILE
BY
K.C.S.



offers

Luminous Ceiling Applications

FOR LESS THAN 50¢ A SQUARE FOOT



Luma-Tile offers an entirely new medium for imaginative luminous ceiling lighting designs. Its low cost and ease of installation make practical applications that have never before been possible. Luma-Tile is designed to fit all acoustical tile grid systems.

Write today for prices and specifications

LUMA-TILE
by
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Lighting Products Division
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KIRBY-COGESHALL-STEINAU CO., INC.
606 East Clybourn Street, Milwaukee 2, Wisconsin

HERCULES
CEMENT
CORPORATION

Hercules Cement Corporation Offices, Stockertown, Pa. Architects: Cronheim & Weger, Philadelphia, Pa. Contractor: E. C. Machin, Inc., Allentown, Pa. Lupton Type H Curtain Walls

New Design Horizons with Lupton Curtain-Walls

Architect-designed Lupton Aluminum Curtain-Walls *make* the facade of this smart, modern building. While these particular walls are neutral gray, they could be as colorful as a sunset. They can be designed with a variety of window styles and panel materials, in almost any color or combination of colors, smooth or textured. Their decorative possibilities have no limit.

Through pre-fabrication of panels and windows, building construction was faster than by conventional methods, yet the walls are weathertight, weatherproof, insulated and offer a lifetime of service. Fabrication and installation were done under one contract.

If you haven't discovered the beauty, versatility and time-saving qualities of the Lupton Simplified Curtain-Wall System, do it now! You'll find additional data in Sweet's or write for the illustrated brochure that details this modern way to build.

MICHAEL FLYNN MANUFACTURING CO.
Main Office and Plant: 700 East Godfrey Avenue, Philadelphia 24, Pa.

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Stockton Office and Warehouse: 1441 Fremont Street, Stockton, Cal.
Cincinnati Office: DeSales Bldg., 1620 Madison Road, Cincinnati 6, Ohio

Sales Offices and Representatives in Other Principal Cities

LUPTON

METAL WINDOWS AND CURTAIN-WALLS

Men and Jobs

Bagnulo, Solomon Receive New Army Engineer Posts

Col. Aldo H. Bagnulo has been assigned as District Engineer of the Eastern Ocean District, which handles Army Corps of Engineer matters in Greenland, Labrador, Iceland, Bermuda and the Azores. District headquarters is located in New York City.

Colonel Bagnulo, who has been Assistant District Engineer, will succeed Col. Morton Solomon, now assigned as deputy assistant for engineering and contracts in the Office of Military Construction in Washington.

A native of Revere, Mass., Colonel Bagnulo was graduated from MIT in 1936. In June, 1952, he became District Engineer of the St. Paul (Minnesota) District, and in October, 1954, he was appointed Area Engineer at Keflavik, Iceland.

Colonel Solomon, 53, was educated at the College of the City of New York.

Granger New U. T. Dean As Dougherty Retires

A. T. Granger, head of the University of Tennessee civil engineering department, was named dean of the college of engineering last week by the trustees' executive committee.

Granger, a nationally recognized specialist on bridges, will succeed Nathan W. Dougherty, long-time U.T. dean of engineering and secretary of the Southeastern conference. Dean Dougherty is retiring at the end of this month, and will take a consultant post at Arnold Engineering Development Center at Tullahoma, Tenn. Dougherty was named dean emeritus of the college.

N. W. Dougherty

Three Seabee Captains Made Rear Admirals By President

President Eisenhower has approved the selection of three Seabee captains —Capt. Martin W. Kehart, CEC, USN, Capt. Albert J. Fay, CEC, USN and Capt. Horace B. Jones, CEC, USN —for temporary promotion to the grade of rear admiral.

At present, Captain Kehart is District Public Works Officer and District Civil Engineer of the Fourteenth Naval District with headquarters at Pearl Harbor, T. H. From July 1947 to December 1948 he was officer in charge of the $40-million military construction program in Alaska.

Appointed as Commander, Naval Construction Battalions, Atlantic, in November of 1955, Captain Fay was Officer in Charge of Construction and Area Civil Engineering Base Development Officer in the Marianas from June 1949 to December 1950.

Captain Jones, who was assigned to Washington, D. C. as Executive Assistant Chief of the Bureau of Yards and Docks in February 1956, served as Public Works Officer at the U. S. Naval Academy from 1948-51.

Walton Named Construction Engineer for Flaming Gorge

Jean R. Walton has been selected by the Bureau of Reclamation as construction engineer for Flaming Gorge Dam in Utah, one of three construction starts this year on the Colorado River Storage Project. He recently completed a two-year mission to Australia, where he advised on construction of the Snowy Mountain Project.

The Flaming Gorge job will have temporary headquarters at Vernal, Utah. Start of construction of an access road and temporary bridge is planned for October 1956, and of the diversion tunnel in May 1957.

NSF Science Director Named To Direct Corps Research Lab

George H. Hickox, formerly director of engineering sciences with the National Science Foundation, has been named director of research at the Army Corps of Engineers Research and Development Laboratories, Fort Belvoir, Va.

His appointment completes a newly

COMMENT
from the
BUTLER ENGINEER

Of Wheelbarrow Batching and Non-existent Ready Mix

Planning for the Road Show put my mind in a reminiscent gear . . . the days when batching was done by piling materials in long windrows: so many wheelbarrows of sand, so many of stone plus a couple of bags of cement — as an afterthought. This hash went to a steam-driven, steel-wheeled paver — remember? — The boys laid planks ahead for it to run on.

Then came wooden aggregate bins that discharged (still volumetrically) to mule drawn wagons. Bins were carpentered on the job.

The founder of this company, (Mr. B for short) was then a paving contractor. He developed a bin gate that had a unique characteristic: it worked. Then he designed a batcher and a steel bin . . . Mr. B paved in summer, built bins in winter— and pioneered in *weighing* batchers in both seasons.

Next development: bulk cement and great coyness by the engineers to accept it. *So Mr. B and Company developed the interlocked batcher.* Supervisory opposition said, "OK—and our blessing." Pretty important, wasn't it!

What about Ready Mixed Concrete? Man! In those days it was as non-existent as the babies to be born in 1977. Maybe that industry owes a tip-of-the-hat to Mr. B. I mean the Ready Mix industry.

When I think of the new Butler 0-1-0 one man operated, automatic Roadbuilders Plant and its calm command of 2 hungry 34E dual drum pavers . . . and of punched-card batching for Ready Mixed Concrete, I see how far we've come since my whiskers were fuzz.

Want more history? Write to

The Butler Engineer

BUTLER BIN COMPANY
947 WAUKESHA, WISCONSIN

DRAFTING TRENDS

At Brady Inc., Minneapolis display firm, artist William Marshall uses Rotolite to save valuable time, prints layouts and floor plans that formerly were traced.

Office size printer makes crisp copies, takes little space

Unusually compact and efficient, a new printing unit called "Rotolite" is now available for drafting rooms, shops and offices. Designed for quick copies or check prints, "Rotolite" is used with any standard development unit, blueprint or whiteprint.

Despite its streamlined size (the smallest model is 30" wide, 7" deep), "Rotolite" delivers sharp prints from any translucent original. The unit has a unique rotating light source from a 25 W fluorescent tube. Perhaps its biggest advantage is simplicity of operation—untrained people quickly learn how to use it. While no substitute for your normal reproduction service, "Rotolite" is ideal for urgently needed on-the-spot prints.

The sturdy "Rotolite" fits almost anywhere and sets up very easily. It attaches to a wall or works well on a desk or table. No installation is required; it simply plugs into any 115 volt AC outlet.

Available in 3 standard models, "Rotolite" can accommodate print widths up to 18", 27" or 42" in any length. A dry-developing chamber is furnished as a standard accessory. Other developing units are available, semi-moist or wet. The complete unit sells for $129.50 up.

New extension tape rule gives readings from a dial

A unique extension tape called "Rulo-matic" shows linear measurements in a Vernier dial. Easy to read and highly accurate, the self-reading tape gives fractional measurements to 1/16".

The white face tape is counter-balanced with an inner return spring for smoother operation. Special pads are built into the case to clean and oil the blade each time it is used. Another unique feature: a serrated wheel scriber can etch the point to which measurements are made.

Chrome plated and highly polished, "Rulo-matic" sells for $3.25.

Further information on these items is available from the Reader Service Division of the Frederick Post Company, 3668 N. Avondale Avenue, Chicago 18.

POST

SENSITIZED PAPERS & CLOTHS • TRACING & DRAWING MEDIUMS • DRAWING INSTRUMENTS & SLIDE RULES
ENGINEERING EQUIPMENT & DRAFTING SUPPLIES • FIELD EQUIPMENT & DRAFTING FURNITURE

established three-man civilian directorate—George W. Howard, former chief of technical services, holds the post of technical director and Robert W. Beal, previously chief of mechanical engineering, is director of development.

As chief scientist of the Corps' principal field agency for research and development, Hickox will be responsible for maintaining all research activities at the highest professional level, employing the latest and most effective scientific techniques.

During his two years with the NSF, the new research director was on leave from the University of Tennessee where he served as associate director of the engineering experiment station for six years. Prior to that time he had been in charge of the Tennessee Valley Authority hydraulic laboratory for 13 years. He also taught at the University of California and has consulted on projects of flood control, irrigation, drainage and hydraulic power development.

PG&E Names Appleford Chief Civil Engineer

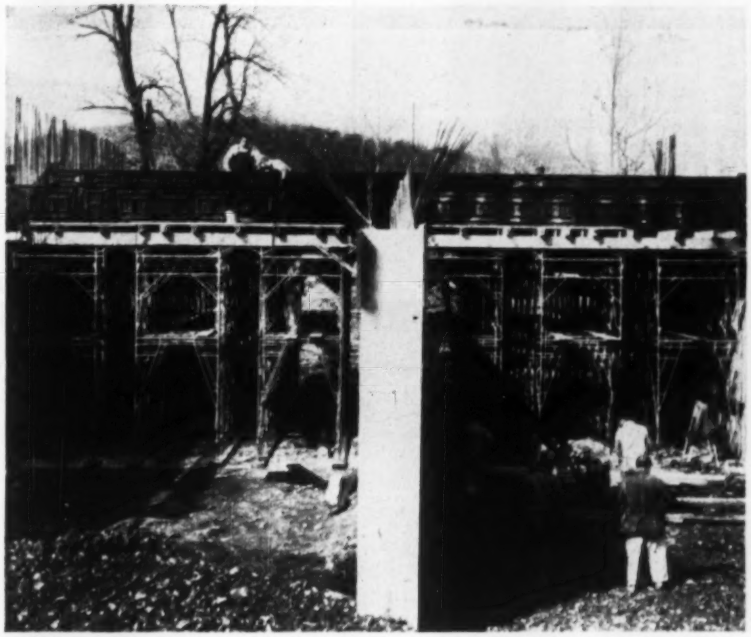
Carl W. Appleford has been named chief civil engineer of Pacific Gas & Electric Co, headquartered in San Francisco.

A member of the company's engineering department since 1920, he succeeds Henry V. Lutge, who retired.

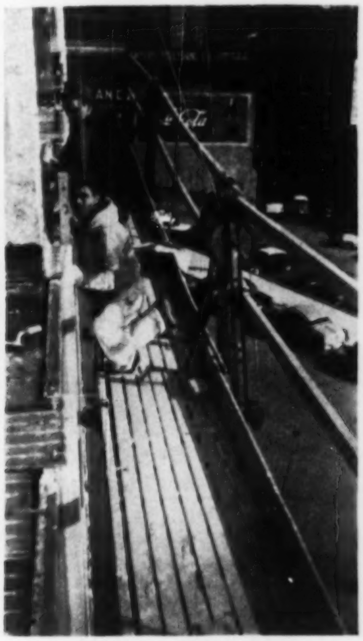
Appleford was supervising civil engineer before assuming his new post. As chief civil engineer he will have charge of civil engineering and economic investigation and designs of hydroelectric developments, plus civil engineering connected with planning

(Continued on page 90)

C. W. Appleford

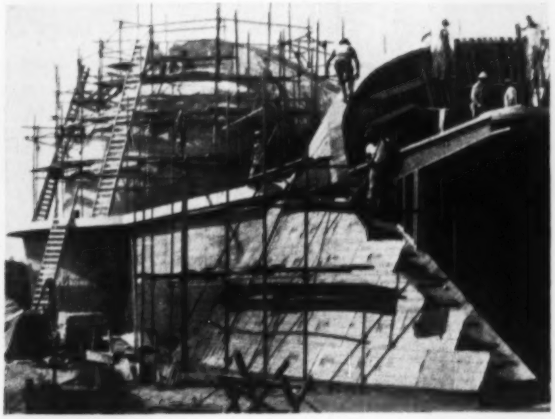


BRIDGE SHORING CUT 25% — Modern "Trouble Saver" ® Steel Shoring helps contractor, Mal-Bros., save 25% in shoring costs, over wood methods, on a street relocation job in Scotch Plains, N.J. 272 frames with patented SlideLoks, quickly assembled in 3' x 5' towers and 2'6" between rows, provide support for the new roadbed. The contractor says his savings would have been 50% if the job were bigger.



LEVELING OFF — Masons for contractor John B. Kelly easily check level from safe, stable 28" wide "Gold Medal" ® Twin Drum Scaffolds on the new 14-story Virginia State Office Bldg., Richmond.

Scaffolding Methods . . . by Patent Scaffolding Co.



ALL SURFACES — Plasterers for Travis and Rodgers, contractor, get everywhere quickly on these 40' by 36'-high odd-shaped domes from 2½ miles of "TubeLox" ® Scaffolding. Cantilevering prevents the scaffolding from bearing at any point on this building in Disneyland near Los Angeles.

REFINERY JOB — "Trouble Saver" Sectional Steel Scaffolding is easily assembled to conform to round surfaces, such as this oil storage tank at the huge new Tidewater Oil Co. Delaware Flying-A Refinery near Wilmington. Workmen for C. F. Braun & Co., builder, are insulating the tank's exterior.

To help you with your scaffolding methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

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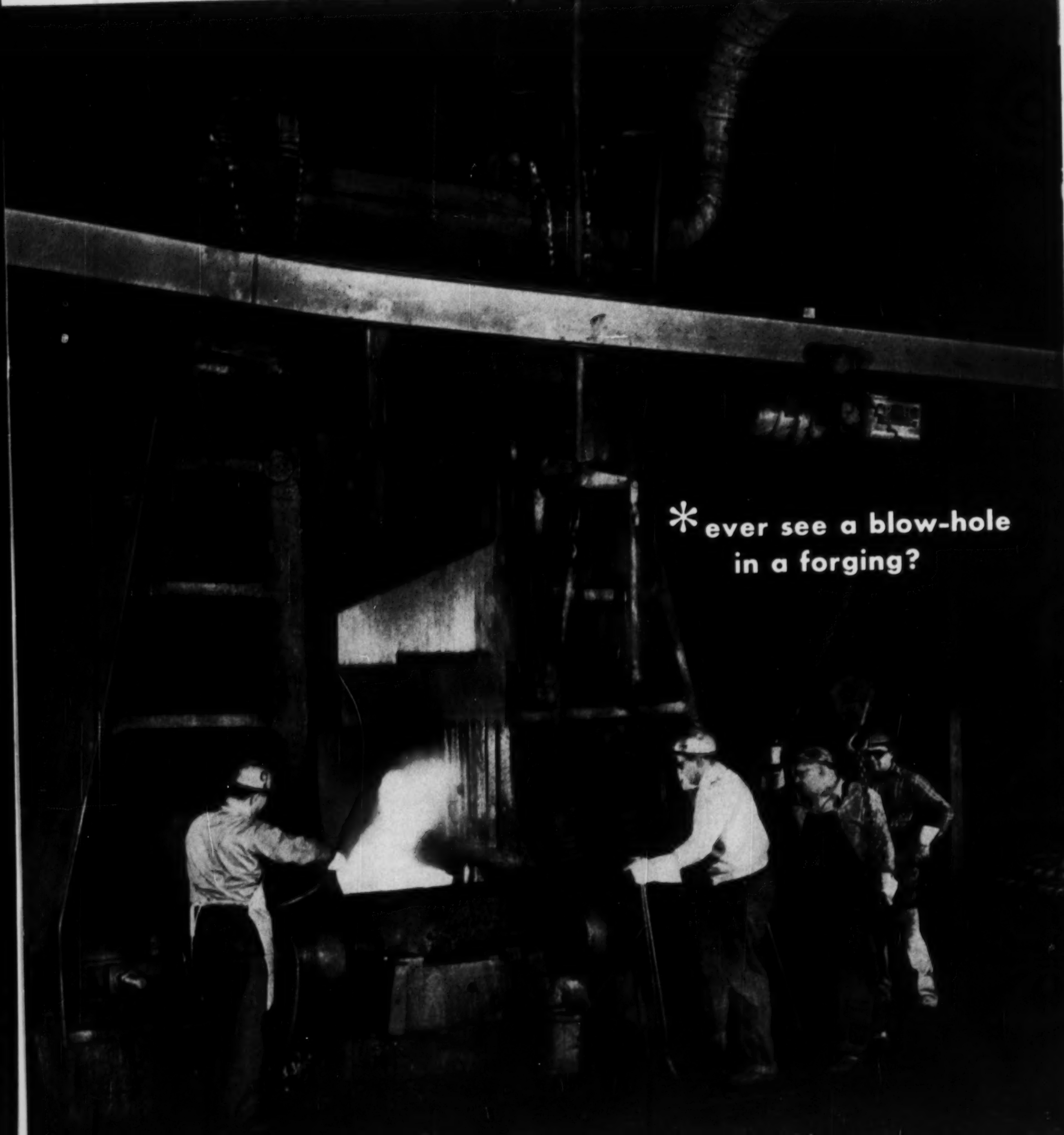
don't spare the rod with P&H



* ever see a blow-hole in a forging?

power cranes & shovels

*see why P&H gears have the guts to take it

You never need ask if P&H power cranes and shovels will handle rated capacity. They've got the guts to deliver at capacity day after day.

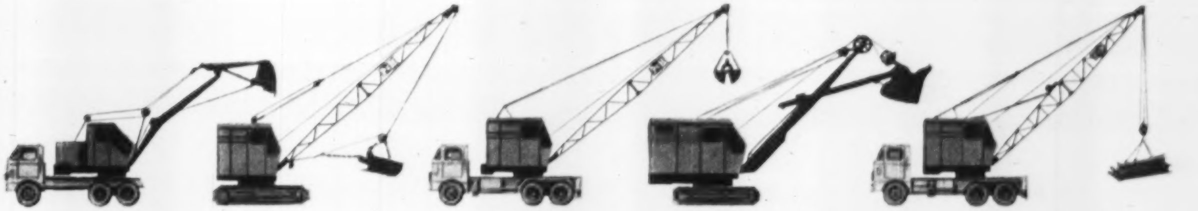
That's why we tossed out castings under critical stress. Replaced them with forged gears. Just like we tossed out castings for uppers and lowers. Replaced them with weldments.

Forged gears help us give you automotive performance in P&H equipment. Cut to a tolerance of 0.001 inch, they're splined to heavy shafts running in antifriction bearings. Line boring of all-welded construction assures perfect alignment. Gears and roller chains in the power box are sealed in an oil bath to minimize friction.

Operators quickly discover the smooth flow of power from motor to dipper or hook. They miss the grind and vibration of old fashioned shovels and cranes.

You'll quickly discover the difference in operating cost. Less down time. Low repair and replacement cost. Even with the toughest digging. That's why we proudly say — don't spare the rod with P&H power cranes and shovels. They've got the guts to take whatever comes their way . . . day after day after day.

No matter how small or how large the job, there's a P&H model to help you make money. Harnischfeger Corporation, Milwaukee 46, Wis.

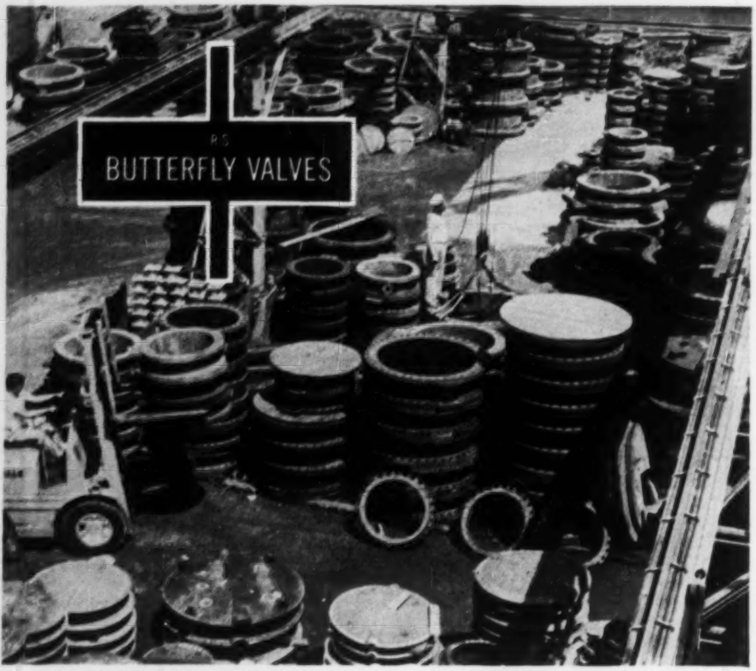


For Modern Engineering, Look to

HARNISCHFEGER

Power Crane & Shovel Division

the P&H Line
TRUCK CRANES
DIESEL ENGINES
POWER SHOVELS
PREFABRICATED HOMES
HOISTS
SOIL STABILIZERS
WELDING EQUIPMENT
OVERHEAD CRANES



In early July, SMS Plant #3 in Philadelphia began work on these orders. Castings for the valve bodies are shown here in storage prior to machining.

295 R-S BUTTERFLY VALVES IN $2,000,000 ORDER FOR PHILADELPHIA FILTRATION PLANTS

Two large valve orders, totaling some $2,000,000, were recently awarded to S. Morgan Smith and The A. P. Smith Manufacturing Co., of East Orange, N. J. These companies bid the valves for two Philadelphia municipal filtration plants, Queen Lane and Torresdale, as a joint venture.

A total of 295 R-S Rubber-Seated, A.W.W.A. standard Butterfly Valves, in sizes from 24 inches to 60 inches, and 632 gate valves, from 3 inches to 42 inches in diameter, are now being built by the two companies. The Queen Lane valves were purchased and will be installed by Roberts Filter Company and Huffman Wolfe Company, and the Torresdale valves by Ambrose-Augusterfer Company.

You can obtain full information on the complete SMS valve line — Rotovalves, Ball Valves and Butterfly Valves for all water works applications — by contacting our local representative or writing to S. Morgan Smith Company, York, Penna.

SMS S. MORGAN SMITH

HYDRAULIC TURBINES
PUMPS
GATES & HOISTS
TRASH RAKES
LIQUID HEATERS
HYDRODYNAMICS
ROTOVALVES
BALL VALVES
BUTTERFLY VALVES
FREE DISCHARGE VALVES
CONTROLLABLE-PITCH SHIP PROPELLERS

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

and designing of steam power plants and other facilities in the company's 47-county system.

A native of Dixon, Ill., he is a graduate of the University of California.

Lutge retired after 36 years in the company's service. Before his appointment as chief civil engineer in early 1952 he served in all phases of PG&E's civil engineering activities.

Former Chief of Engineers Appointed Firm Representative

Eugene Reybold, formerly executive vice president of the American Road Builders' Association, has been appointed special Washington, D. C. representative for the Jay Company, division J. Leukart Machine Co., Columbus, Ohio. Jay Co. manufactures earth tamping and asphalt cutting-and-tamping equipment.

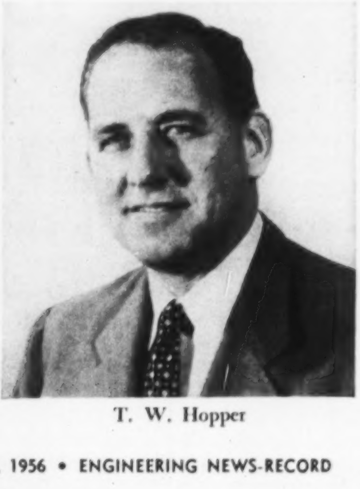
Prior to assuming the ARBA post, Reybold served 38 years active duty with the U. S. Army, and for four years during World War II was Army Chief of Engineers.

Day & Zimmermann Names Hopper to Executive Post

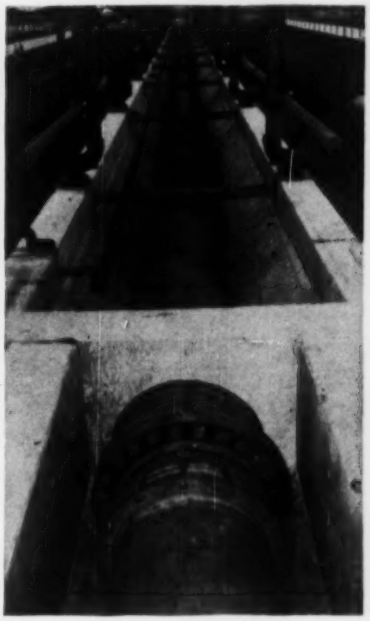
T. E. Seelye, president of Day & Zimmermann Inc., engineering firm of Philadelphia, New York and Chicago, has announced appointment of Thomas W. Hopper to the post of executive vice president. Hopper, who has been with the firm for the past 15 years, previously served as its director of engineering.

A mechanical engineering graduate of Cornell University, he is active in the American Society of Mechanical Engineers and is chairman of the Engineers Joint Council Committee on Employment Conditions.

Other changes announced by See-



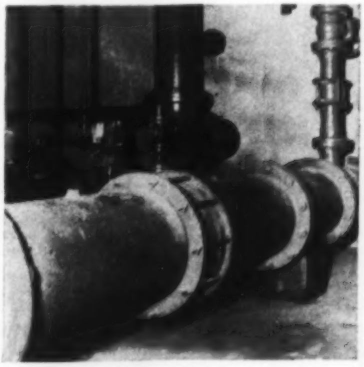
T. W. Hopper



Workmen (left) adjust follower rings before inserting bolts on a 30-inch Style 38 Dresser Coupling. It's the air line leading to the main settling tank in Miami's Virginia Key Sewage Disposal Plant. Steel and cast iron pipe meet in a Style 62 Dresser Reducing Coupling on aeration tank air line (above).

Quick-change Act for Miami Disposal Plant

Steel pipe and Dresser Couplings provide easy access, system flexibility



Dismantling for maintenance looks and is easy with a Dresser Style 38 Coupling. This one joins a low flushing water line in chlorinator building. Another Style 38 is on the vertical line at upper right.

Miami Sewer Project Associates designed the new Virginia Key Sewage Disposal Plant at Miami, Florida, for high reliability and convenient modification.

They sought easy dismantling of permanent aeration lines so maintenance and repair of equipment could be performed quickly. They also wanted an easy way to dismount and set up dewatering lines in new positions as required.

Dresser Couplings were chosen as the ideal answer to this common disposal plant piping problem. They went in quickly, easily and accurately — five precision-made parts, plus required bolts, reduce all pipe joining to a simple mechanical operation. Installations require only a wrench . . . average joining time, two man-minutes per bolt. And they're easy to install in tight places.

Dresser Couplings are a "must" for dismantling purposes. Removal is as easy as assembly . . . and all coupling parts may be re-used in the new piping setup. And, most important in any sewage disposal project, they remove strains on pumps and valves.

Proved in use for more than 60 years, no pipe joining method provides all the Dresser advantages . . . 100% tight, permanent, flexible, simple, fast and economical. Send for complete information about Dresser applications on water, sewage, and industrial waste projects. Write Dresser Manufacturing Division, Bradford, Pa. Sales offices in: New York, Philadelphia, Chicago, S. San Francisco, Houston, Denver, Toronto, Calgary.

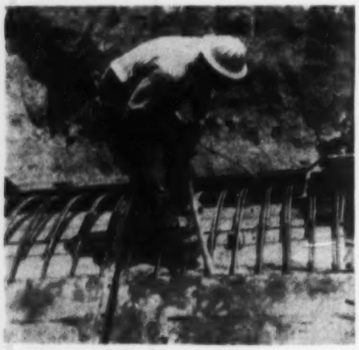
THE COMPACTNESS and lightweight portability of UniViber makes it easy for one man to handle . . . small size makes it easy to transport in trunk of ordinary car.

Extra Man Eliminated by Using UniViber Plug-in Vibrator

Motor in head design eliminates the hours wasted by workman dragging motor after the operator and provides greater flexibility in job application.

Motor in Head

UniViber power is a universal type motor connected directly to the eccentric weight it rotates. It may be plugged into any standard 115 volt AC or DC source. The motor is cooled by wet concrete surrounding the head. Speed approaches 10,000 rpm. More work can be done in less time, and with minimum danger of damage to forms by using the high speed low amplitude type of vibrator pioneered by VIBER.



Particularly adaptable for use in hard-to-reach places, UniViber may be tossed into the concrete and pulled back toward you . . . the UniViber vibrator manipulates effectively and easily by using the casing as a handle.

Greater Flexibility in Operating Techniques Reduces Costs

Wires leading to the head are protected by a flexible casing which also functions as a convenient handle. The easy-to-handle UniViber vibrator gives the workman more freedom of action because absence of moving parts in the casing allows increased flexibility. This new freedom enables the operator to employ new cost saving vibrating techniques.

Two Models Available

UniViber Model 1M3R is equipped with the Viber patented replaceable rubber tip. Model 1M3 has housing with steel nose. One piece VIBER patented eccentric weight is tapered to produce minimum vibration where brushes ride on the commutator. Another feature is splash lubricated non-metallic separator bearings, used so successfully in other VIBER vibrators.

VIBER COMPANY is a pioneer in the design and development of both internal and external vibrators. For further information on VIBER'S complete line of vibrators, contact your authorized distributor or Viber Company, Dept. 7D9, 726 So. Flower Street, Burbank, California.

VIBER

VIBRATORS SINCE 1931

lye: W. R. Moseley, who has been assistant to the president, becomes administration vice president; H. A. Reed, who has been a vice-president, becomes a senior vice-president; and A. M. Rife, manager of the reports department, becomes a vice president.

Men and Jobs Briefs . . .

• **Associations**—The Portland Cement Association names **Hugh Barnes** regional manager of the newly opened Los Angeles regional office . . . **Gilbert A. Meland** is named Oklahoma field engineer at Tulsa for the Clay Products Association of the Southwest.

• **Military**—The Air Force assigns **Col. Colie Houck** as executive to the assistant chief of staff, installations, headquarters USAF. He succeeds **Col. Oran O. Price** who is named deputy to the deputy of staff, installations, Air Defense Command . . . **Col. Albert E. McCollam** takes over command of the Sacramento district, Corps of Engineers.

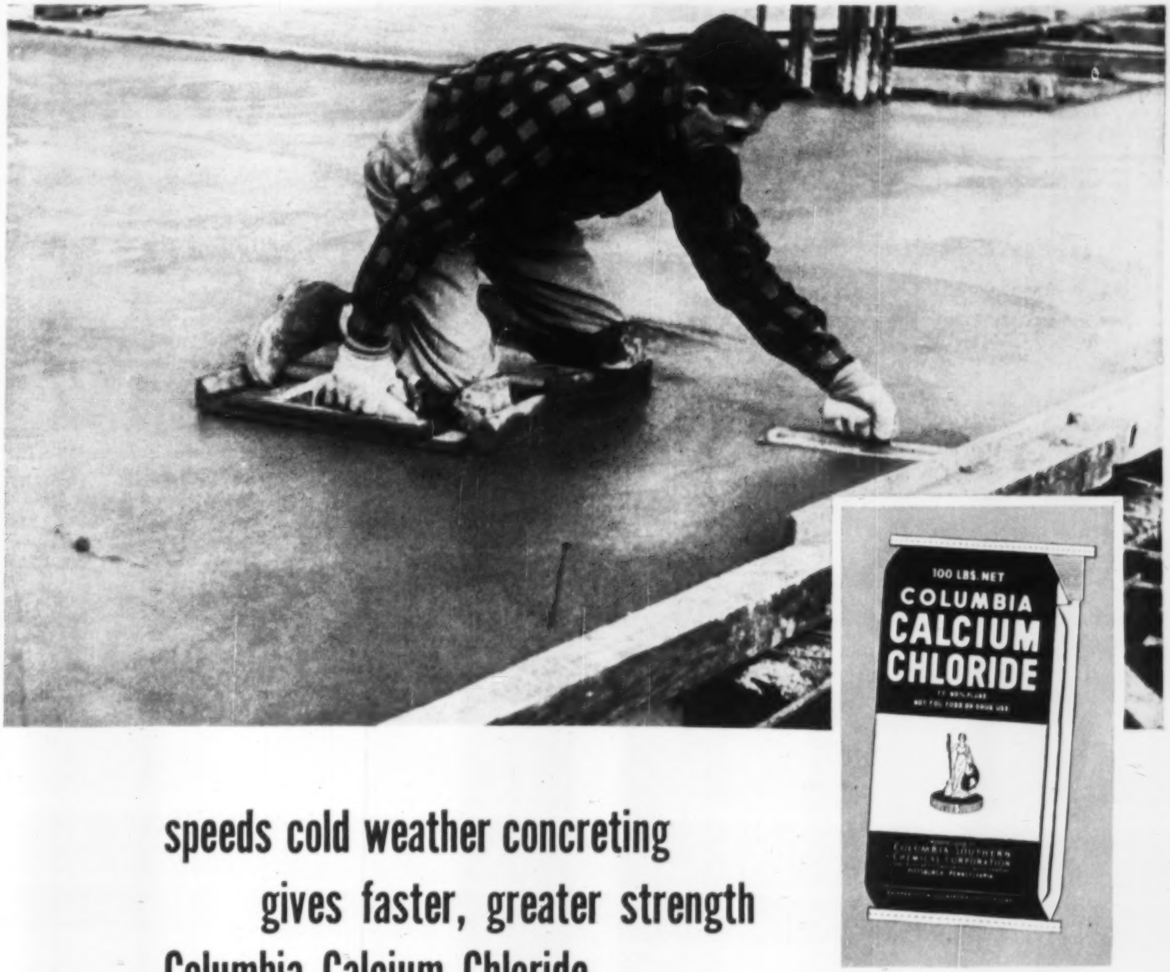
The new executive officer for the Walla Walla (Wash.) district, Corps of Engineers is **Lt. Col. William F. Hart, Jr.** . . . Transferring from the Atomic Energy Commission, **Lt. Col. William C. Cribble, Jr.**, is assigned as executive officer with the Alaska District, Corps of Engineers . . . **Leo M. Buhr** is named chief of construction and operations for the North Pacific Division of the Corps, succeeding the late **Samuel G. Neff**.

• **Careers**—The Maryland State Roads Commission appoints **Roland E. Jones** as special assistant to the chairman . . . **William B. Kirchman** is named manager of the Water Authority at Blacksburg, Va. . . . **Jim Kladianos** of Superior, Wyo., is appointed city engineer at Rawlins, Wyo. replacing **Ted Pfisterer** who resigned to join a Laramie, Wyo., engineering firm.

Robert B. Jackson, general superintendent and assistant manager of a division of Koppers Co. at Baltimore, Md., is named by the Grant County PUD of Ephrata, Wash., as its resident engineer for the construction of the $100 million Priest Rapids Dam . . . **Robert Steytler**, city water bureau engineer of Erie, Pa., will become the city's chief engineer Sept. 1, succeeding **Fred Gorenflo** who is resigning after 24 years of service.

• **Business**—The United States Steel Corp. appoints **Wynne C. Walston**

(Continued on page 94)



speeds cold weather concreting gives faster, greater strength Columbia Calcium Chloride

Whether you're building roads or constructing buildings of concrete, Columbia Calcium Chloride in the mix saves you considerable time and money. Any time the temperature drops below 70 degrees F., you need Columbia Calcium Chloride to avoid lag in the set of concrete—and to assure high early and ultimate strengths.

It's easy to use this high grade calcium chloride—it can be added to the mix manually, or by automatic feeders. Calcium Chloride is easy to control, too, in either flake form or solution.

Here are some of the advantages you get when you add Columbia Calcium Chloride to your concrete mix

FASTER SET! Under normal conditions, Columbia Calcium Chloride will cut the initial set from three hours down to one, and the final set from six hours to two. The effects are even more pronounced at lower temperatures. Think what this means in getting finishers on the job fast . . . in avoiding costly overtime!

QUICKER EARLY STRENGTH! At 40 degrees F., for example, the strength of Columbia Calcium Chloride cured concrete is as great in one day as plain concrete is in two days—in three and a half days it is as strong as plain concrete after seven days! You can keep the job moving at cost-saving speed with Columbia Calcium Chloride!

INCREASED WORKABILITY! Increased workability without change in the water cement ratio when Columbia Calcium Chloride is used.

GREATER ULTIMATE STRENGTH! Ultimate strength as well as early strength, is greater through the use of Columbia Calcium Chloride. Typical increases from tests show 9% in 3 years, 10% in 5 years.

RELEASES FORMS FASTER! The use of Columbia Calcium Chloride means forms can be moved to other sections faster, cutting down on the total time required for the job, or releasing them for other jobs sooner. You have less money tied up in expensive forms.

Write today to our Pittsburgh address for complete information on Columbia Calcium Chloride for concrete curing.

**COLUMBIA-SOUTHERN
CHEMICAL CORPORATION**
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
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IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

A grain elevator gets a good going over, *INSIDE, OUTSIDE!*

COMPLETE BREAK-THROUGH IN WALL

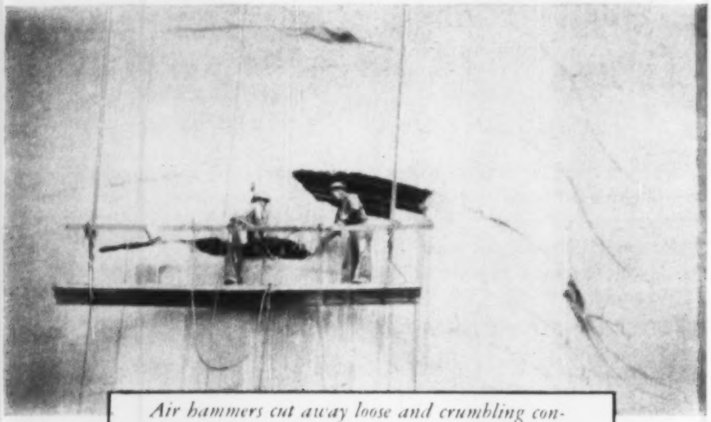
How to save this costly structure, without rebuilding sections, presented a serious problem.

Workmen on scaffolds, from inside and outside, cut out deteriorated concrete.

Necessity of costly forming was eliminated by the use of THORITE 20-minute set, nonshrink, filling and patching mortar.

THORITE

THORITE permits completion of job in one fall of scaffold, followed immediately by THOROSEAL seal coat.



Air hammers cut away loose and crumbling concrete. THORITE formed into cleaned-out sections, with a minimum labor cost, restored elevators to original condition.

Job completed with the application of THOROSEAL over entire structure.

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as contracting manager for the Cleveland District of the American Bridge Division . . . **Charles H. Evans** takes over as manager for water lines, penstocks, water and sewage treatment sales for the Dresser Manufacturing Division, Dresser Industries, Inc., Bradford, Pa.

Noel M. Ravneberg, formerly specializing in field seismic surveys for the New York State Department of Public Works joins as engineering geologist to Lockwood, Kessler & Bartlett, Inc., consulting engineers of Syosset, N. Y. . . . The engineering firm of Beiswenger, Hoch and Associates of Jacksonville, Florida, has formed a new architect-engineering association with architect **Harry E. Burns, Jr.,** under the name of Beiswenger, Hoch and Burns.

• **Retirements—Ralph H. Fifield,** veteran engineer for the Montana Water Conservation Board after 20 years of service. . . . **George E. Sullivan,** vice president in charge of operations for Portland General Electric Co. in Oregon, after 54 years of service to the firm.

Obituaries

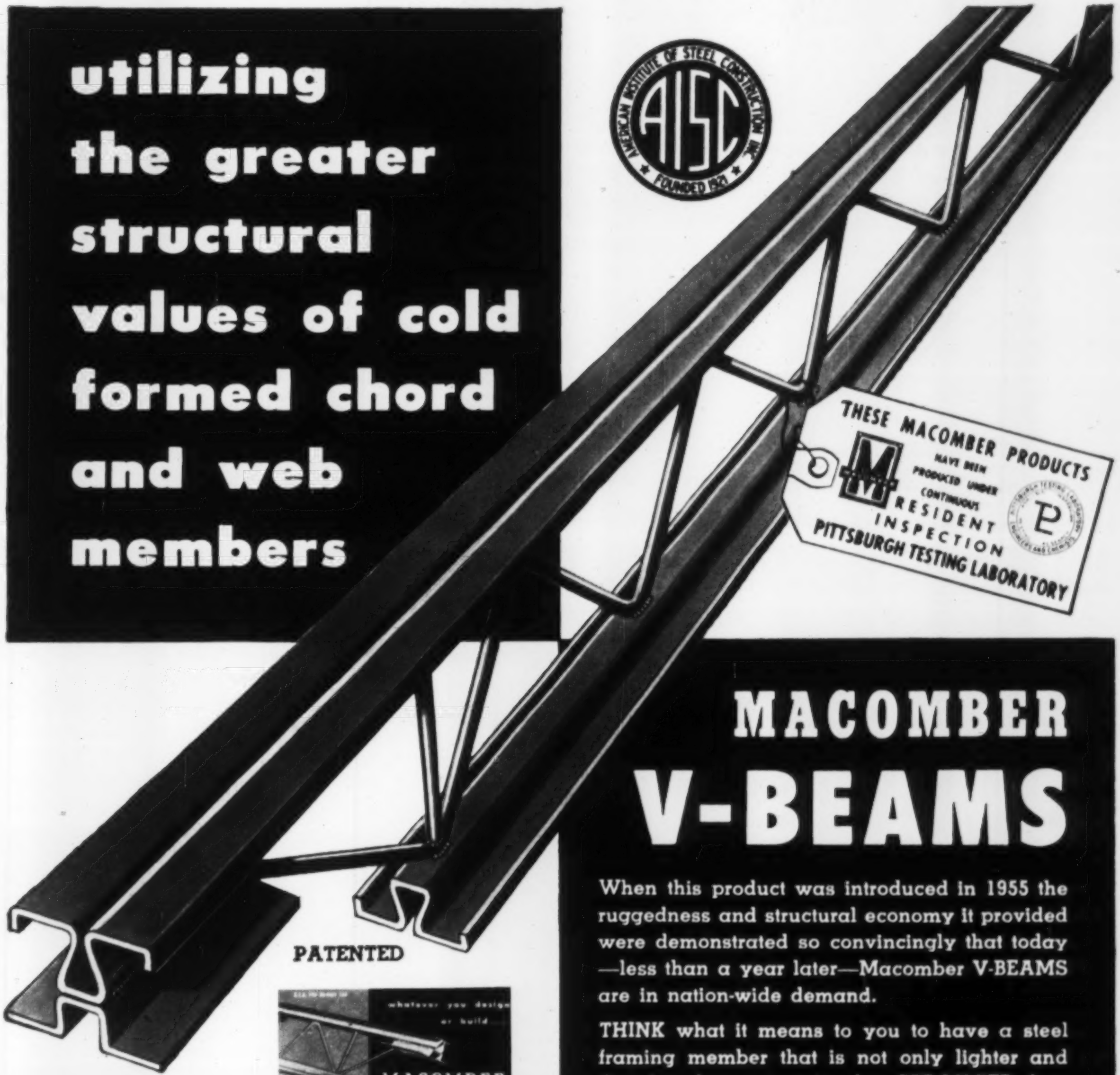
John H. Gardiner died last month at Tucson, Ariz. Mr. Gardiner was a national director of ASCE from District 11 from 1945 to 1947. He was associated with the U. S. Geological Survey in surface water investigations since 1919 and was district engineer in charge of the work in Arkansas, 1929-37, and district engineer in Arizona since 1938.

Brig. Gen. Warren T. Hannum, Ret., 76, died in San Francisco August 14. He formerly was Pacific division engineer for the Corps of Engineers and served as California state director of natural resources under Gov. Earl Warren, now Chief Justice.

William R. Hill, civil and hydraulics engineer of Seattle, Wash., died there July 21. He formed the consulting firm of Parker and Hill, now Hill & Ingman, in 1923 and was engaged in numerous water and sewer projects in the State of Washington. Mr. Hill was a civil engineering graduate of the University of Washington, class of 1906.

Melvin O. Sylliaasen, consulting engineer, died in Seattle, Wash., July 29. He was city engineer for Seattle from 1932 to 1934 and had conducted his own practice in the structural field until the time of his death.

utilizing the greater structural values of cold formed chord and web members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PITTSBURGH TESTING LABORATORY

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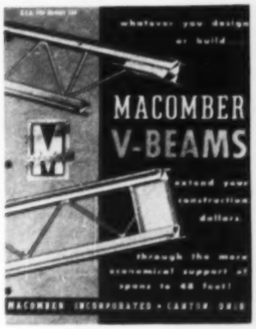

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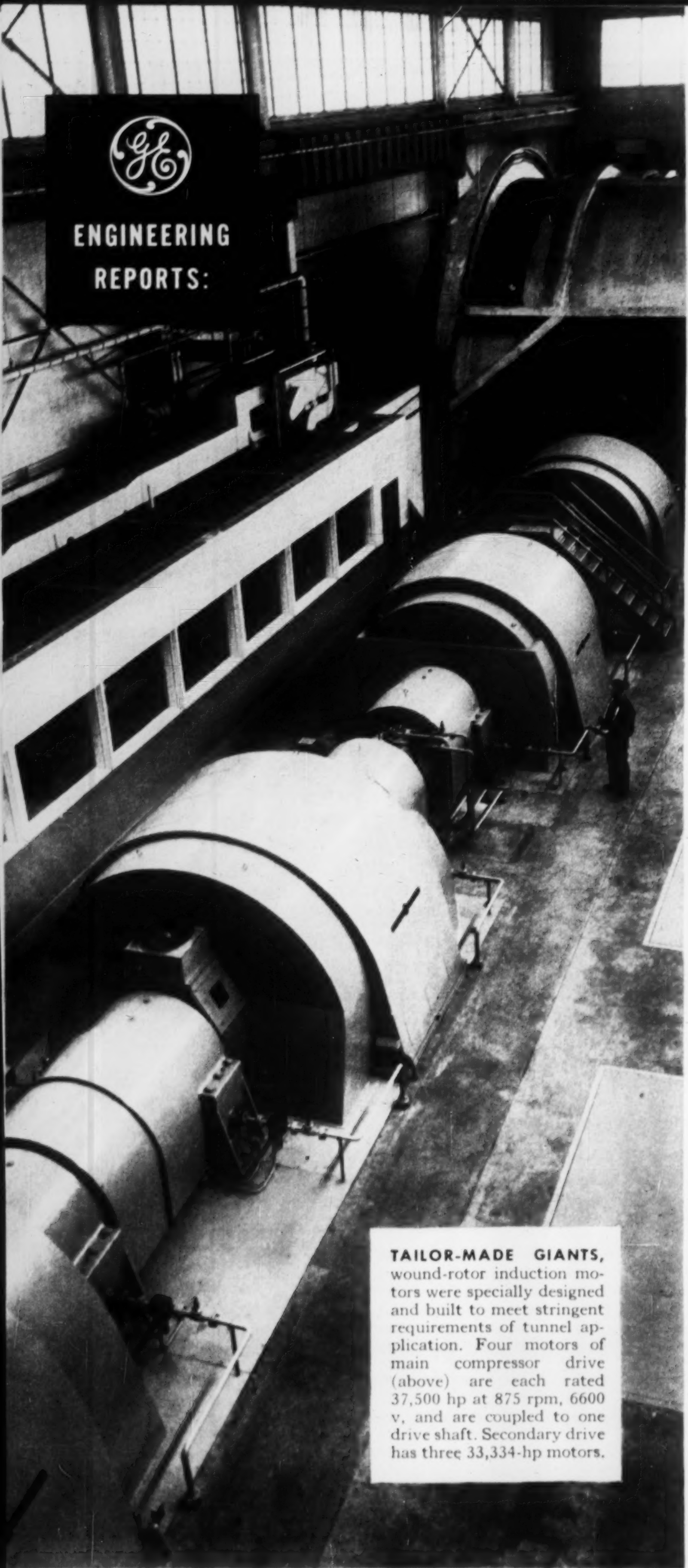
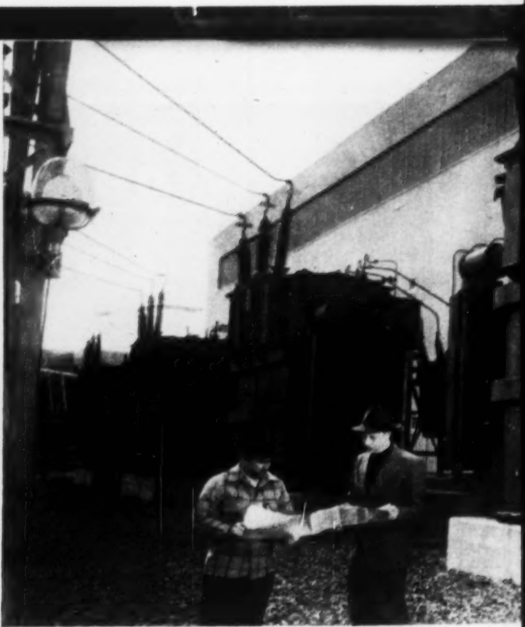


TAILOR-MADE GIANTS, wound-rotor induction motors were specially designed and built to meet stringent requirements of tunnel application. Four motors of main compressor drive (above) are each rated 37,500 hp at 875 rpm, 6600 v, and are coupled to one drive shaft. Secondary drive has three 33,334-hp motors.

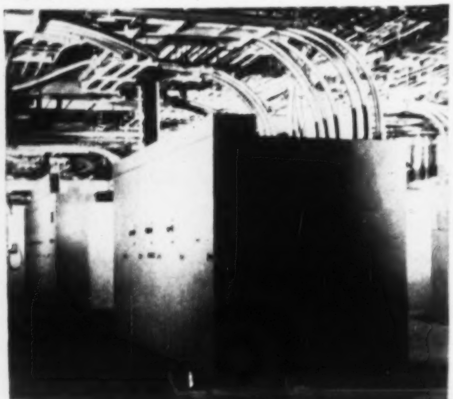


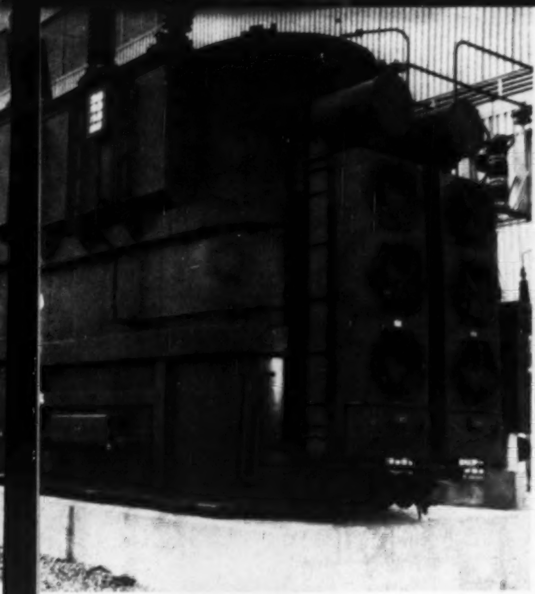
HIGHLY-RELIABLE stepdown of large blocks of 138-kv power is feature of specially-designed 70,000-kva transformers in huge substation.

General Electric wind tunnel to

ENGINEERING ASSISTANCE helped from design to start-up. Here (r-l) K. F. Culler, G-E engineer confers with NACA's J. R. Braig, M. H. Pollyea.

PROTECTION, control of high-current circuits supplying power to drive motors is provided by highly dependable G-E metal-clad switchgear.





Interconnected tertiary windings can supply power to any main motor to sustain operation should its normal source be interrupted.

FACTORY-ENGINEERED, ASSEMBLED control provides centralized control of auxiliary motors. Double-ended Cabinetrol* unit substation (above) provides power and control for smaller motors. Limitamp* units serve higher-voltage motors.

helps NACA equip world's most powerful allow testing of aircraft engines at 2300 mph

For testing of aircraft engines in winds 3½ times speed of sound the National Advisory Committee for Aeronautics has opened a new wind tunnel at Lewis Flight Propulsion Laboratory, Cleveland. General Electric helped design and supplied the power system for this impressive installation.

IMMENSITY OF JOB is apparent from fact that electric system supplies enough power for homes in city of 650,000. Two compressor drives totalling 250,000 hp continuously (300,000 hp for short periods) make this the most powerful wind tunnel drive in the world and one of largest motor drives known.

General Electric application engineers C. C. Clymer, K. C. Mobarry, and M. D. Horton combined the required special equipment into a co-ordinated electrical supply, drive, and control system. They worked closely with NACA to help assure reliable, efficient operation of this important new facility.

THIS DEMONSTRATES General Electric's ability to perform on the most exacting, complex projects. The same engineering resources can be put to work for you no matter what your electrical problem. Contact your nearest G-E Apparatus Sales Office. General Electric Co., Schenectady 5, N. Y.

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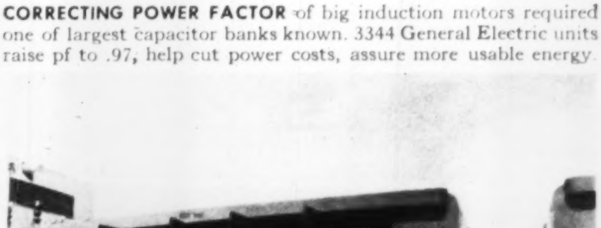
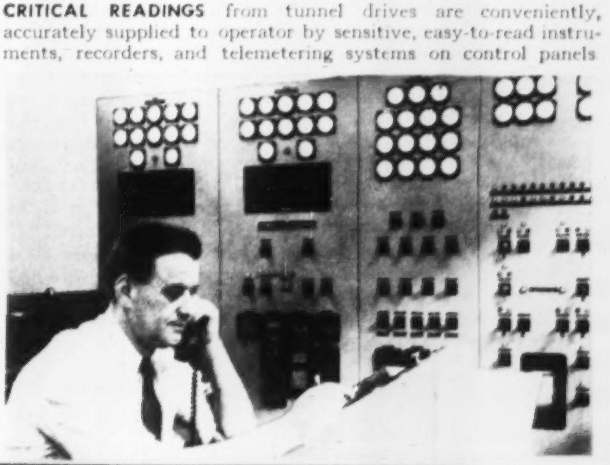
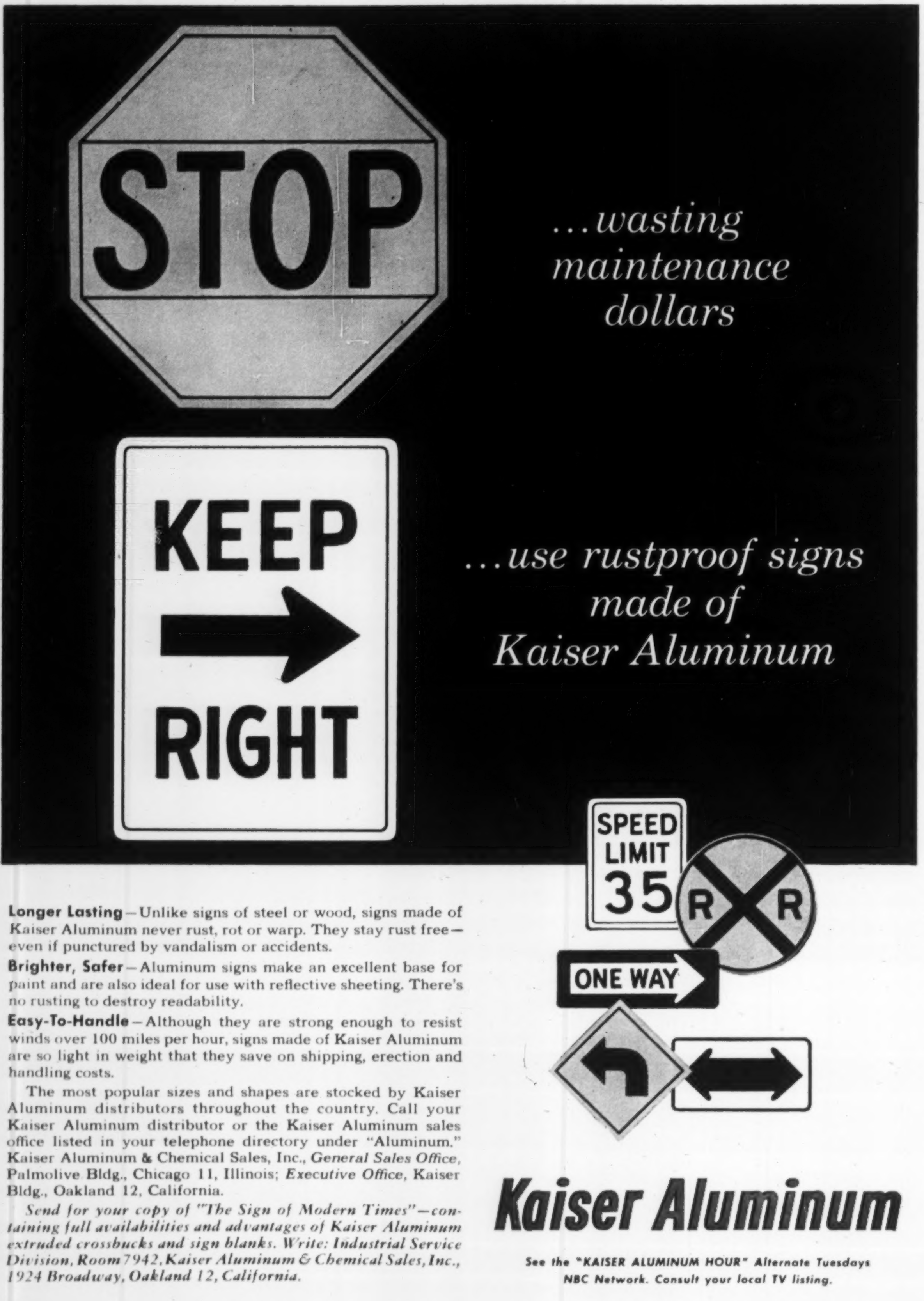
GENERAL ELECTRIC

CORRECTING POWER FACTOR of big induction motors required one of largest capacitor banks known. 3344 General Electric units raise pf to .97, help cut power costs, assure more usable energy.



CRITICAL READINGS from tunnel drives are conveniently, accurately supplied to operator by sensitive, easy-to-read instruments, recorders, and telemetering systems on control panels

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...wasting maintenance dollars
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The most popular sizes and shapes are stocked by Kaiser Aluminum distributors throughout the country. Call your Kaiser Aluminum distributor or the Kaiser Aluminum sales office listed in your telephone directory under "Aluminum." Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office*, Palmolive Bldg., Chicago 11, Illinois; *Executive Office*, Kaiser Bldg., Oakland 12, California.

Send for your copy of "The Sign of Modern Times"—containing full availabilities and advantages of Kaiser Aluminum extruded crossbucks and sign blanks. Write: Industrial Service Division, Room 7942, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California.

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See the "KAISER ALUMINUM HOUR" Alternate Tuesdays NBC Network. Consult your local TV listing.

Research

▸ **While annual heating and cooling costs for homes constructed to meet FHA requirements are reported to average $209.08 . . .**

▸ **By beefing up insulation, Owens-Corning Fiberglas Corp. reveals in 40 test homes that costs drop to $139.89**

This is the breakdown by region:*

Location	Houses	(Annual Average Cost) Heating	Cooling	Total
NORTHERN	**16**	**$99.11**	**$27.58**	**$126.69**
CENTRAL	**11**	**$75.84**	**$49.92**	**$125.76**
SOUTHERN	**13**	**$29.85**	**$109.20**	**$139.05**

* Table adjusts each test house to a standard 1,200-sq-ft floor area; fuel and power to the national average rates.

How Much Does Insulation Pay Off?

Early results are in from the first 40 homes to be built in Owens-Corning Fiberglas Corporation's two-year, national, low-cost heating-and-cooling test program. A total of 130 homes will be completed for the program which is aimed at finding the average cost of heating and cooling a "comfort engineered" house in all climates.

"Comfort engineered" homes have outside walls insulated with 3-in.-thick, paper-enclosed glass-fiber insulation. Also required are 6 in. of blown insulation for ceilings in cold climates, and 3 in. of foil-enclosed insulation for those in warmer regions. In moderate and cold climates, concrete-slab and crawl-space perimeter insulation was also specified.

Records from the first 40 houses show that the average house in the program can be heated and air-conditioned all year for an average of $11.66 per month, or $139.89. According to results, had the houses been constructed merely to meet FHA minimum property requirements, the average annual operating cost would have been $209.08. The 40 homes have an average floor area of 1,244 sq ft and are distributed as far north as Minneapolis, as far south as Miami, east to Boston and west to Spokane and Los Angeles.

According to the report, preliminary cost studies show that the cost of "comfort engineering" is offset by the ability to use a smaller and lower-cost heating and cooling unit. It states that builders in the South can save up to $56. Operating savings were found to average from $2.62 per month in the North to $6.02 per month in the South.

Few of the 130 houses will be two-story, some will be split levels, but the majority will be ranch-style homes. The greatest number will be heated by gas and cooled by electricity, followed in order by those heated by oil and cooled by electricity, those completely gas and those completely electric.

Participating in the program are 51 utility companies as well as 133 builders in 38 cities.

Concrete Strength

Research yields faster way to predict strength

A method that will enable engineers to predict the 7- or 28-day strength of concrete a few hours after it has been placed has been developed in England.

Results to date show the predicted strengths to be within 5% of actual 7- and 28-day strengths. This assumes that the cements and aggregates come from constant sources. But even when random unknown portland cements (normal or high-early-strength types) were tested, the prophesized strengths were within 10%. In one case, cements were chosen specifically to throw the test off, yet deviations remained less than 10%.

Present research, as well as the work leading to the development, is under Prof. J. W. H. King at Queen Mary College, University of London. The Port of London Authority requested the research and is financing it. The method is also being tried in several laboratories and on several construction projects.

• Basically a simple method—Two features characterize the new test

Do You Have This PIPE PROTECTION PROBLEM?

Underground piping must be protected against destructive forces of corrosive soils and electrolytic conditions. Normally, coal tar coating as called for in AWWA specifications C-203 and C-204 would be hot-applied at a coating mill. However, there are times when the volume of pipe involved or the distance of a coating mill make this impractical from a time and cost standpoint.

You'll find the ANSWER with TAPECOAT® . . . the Quality Coal Tar Coating in Tape Form

TAPECOAT is the widely-accepted alternate material that is equivalent to mill-applied hot coal tar protection. With this easy-to-use material, protection can be applied in the field by your own men, because technical know-how, kettles and special crews are not required. You save time and money while providing the long-life protection called for.

TAPECOAT is easily applied, using a torch to soften or bleed the pitch which gives both bond and protection. Available in widths from 2" to 24", it is spirally wrapped or cigarette wrapped around pipe, pipe joints, couplings, conduit, cable, and insulated piping.

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BLUE PRINT RACK
FOR ARCHITECTS, ENGINEERS, CONTRACTORS & FACTORIES
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Easy to File . . .
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ALL STEEL
20 EXCLUSIVE FEATURES, Including:
1. No holes to punch.
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ALL STEEL construction, but NO INCREASE in price at this time!
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INCLUDING 12 PLAN HOLDERS
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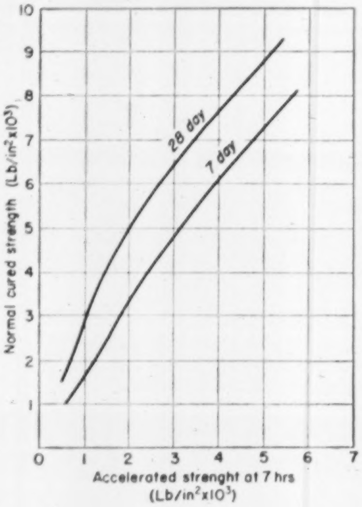


procedure: (1) an accelerated process of curing concrete for seven hours, and (2) a graph plotting actual 7- and 28-day strengths versus the compressive strength of the accelerated-curing sample.

To obtain the graph, the researcher plotted experimental points for a wide range of water-cement ratios (from 0.35 to 0.70 in this instance) and a wide range of aggregate-cement ratios (in this case from 3.5:1 to 6.5:1). This gave two smooth curves—one for 28-day strength, the other for 7-day (see graph above).

Armed with this chart, the engineer on the job merely puts his sample through the accelerated curing process, then crushes it in a standard testing machine. Once he knows the accelerated-test value, he can pick the "predicted" 7- or 28-day value from the chart.

Key to the method as presently conducted is the 7-hr curing process. Prof. King points out, however, that this can be lengthened to a longer process, or shortened. Such variations in the testing procedure would only move the curves on the chart one way or the other.

Accelerated curing begins with placing the concrete sample in 4-in. cubic cast-iron molds of the type commonly used in England. One-half hour after mixing, the molds are placed in an oven. So as to leave adequate space for air circulation, molds are stacked on open racks in the oven. A cover placed over each prevents drying.

The oven reaches a curing temperature of 200F within a half hour. This temperature is held constant for the remaining 5½ hours of curing time, after which the cubes are removed. The sample is allowed to cool enough to handle, or one half hour more, at which time it is put through the compression test. Total time elapsed from mixing to testing is 7 hours.

For plotting the graph, duplicate cubes are mixed at the same time for the 7-day and 28-day tests. These are cured in their molds for 24 hours in moist air at 68F, then kept under water at laboratory temperature until tested.

• **What was used and learned**—Aggregates contained about 66% over ⅜-in. stone with a maximum size of ¾ in. According to the researchers, portland cements, even of the high-early-strength or sulfate-resisting types, showed no significant deviation from the curves presented here. However, results were not so favorable with aluminous cements. Also noted was the fact that crushed aggregate and coarse sand tend to give greater strengths at 28 days than that predicted by the curve, but 7-day strengths were about as predicted by this method.

While Prof. King believes the curves reproduced with this article are adequate for early site work, he recommends that curves be prepared as soon as possible to cover the range of mixes used (varying the water-cement ratios ±0.05 and the aggregate-cement ratios ±½ from the standard set). He further adds that with the cement taken from one factory and a reasonably constant aggregate grading, the predictions that are arrived at should be within 200 psi of the resulting actual strengths.

Maryland Seeks Savings Through Road Research

A joint highway research program—aimed at accomplishing economies in the state's road plans—has been set up by the Maryland State Roads Commission and the University of Maryland.

Under the directorship of Dean S. S. Steinberg of the university's College of Engineering, the research will be conducted in all phases of highways including planning, design, construction, maintenance, and traffic control.

An adminstrative board and an advisory council made up of men from the highway department and college faculty, will work both independently and in cooperation with public and private agencies.

Du Pont explosives go turnpike building in Massachusetts

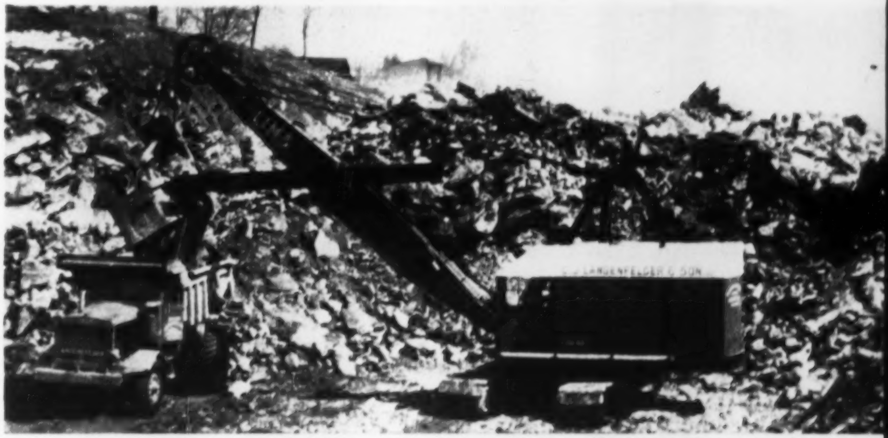
. . . HELP SPEED EXCAVATION OF NEARLY 3,000,000 CUBIC YARDS OF MATERIAL

❶ **Mud and rock** create difficulties on the Millbury-Auburn section of the Massachusetts Turnpike. C. J. Langenfelder & Son, Inc. (Baltimore, Md.), is the contractor.

❷ **Drilling** holes in rock cut. Rock accounts for about 25% of nearly 3,000,000 cubic yards of material the contractor has to excavate.

❸ **Loading** Du Pont 40% Red Cross Extra (2 x 16), high-water-resistance formula, into holes. This all-around dynamite has the necessary power and water resistance.!

❹ **Blasting foreman** fires the shot with a Du Pont CD-48-1 Blasting Machine. This machine fires up to 1,200 holes and eliminates need for erection and maintenance of blasting generators and permanent firing lines.



❺ **Well-broken rock** is the result of this typical blast. There are very few chunks in the pile, which means that the broken material can be quickly and economically removed. Reliable Du Pont 40% Red Cross Extra dynamite comes through time after time with performances like this one!

The dependable Du Pont line of explosive products and equipment is known and respected throughout the world. Why not see how *you* can benefit from it? Have your Du Pont representative answer your questions, or write E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

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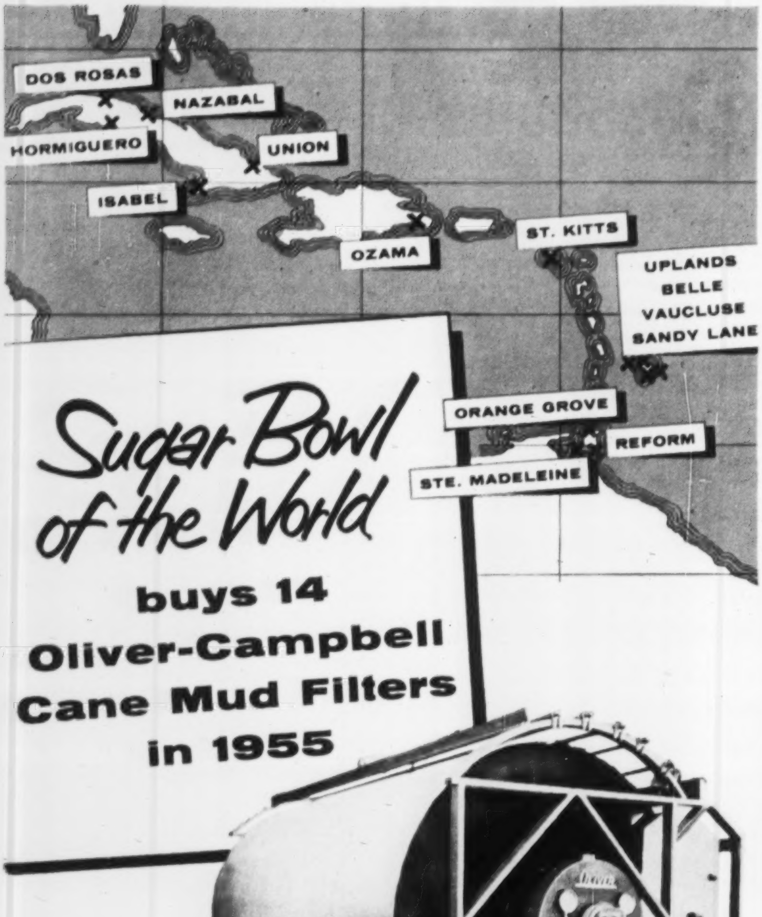

The West Indies have been called the sugar bowl of the world producing 10 million tons per year. And leading sugar factories here, as well as in other parts of the world, continue to install Oliver-Campbell Cane Mud Filters. In fact, 14 of these outstanding filters were sold in 1955 in these Islands alone.

Designed for long life and economical operation, Oliver-Campbell filters incorporate the latest filtration developments resulting in efficient cane mud washing. Operating advantages include — less inversion of sucrose and less re-solution of impurities, higher purity of filtrate, cleaner filtration station and accurate accounting of sucrose recovery.

Satisfying a "sweet tooth" may be only of academic interest to you. However, if you have problems involving any phase of the separation of finely divided solids in suspension . . . or ion exchange . . . or fluidizing technique — chances are that Dorr-Oliver and its world-wide organization can help you.

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Books

Data for Building Design

Building Planning and Design Standards—By Harold R. Sleeper. 331 pp. John Wiley & Sons, Inc., New York, N. Y.; Chapman & Hall, Ltd., London. $12.

This reference volume is chockful of information on various types of building that most designers would have to spend considerable research time to obtain. It supplements "Architectural Graphic Standards," by Sleeper and Ramsay.

The difference between the two works is that the older one principally gives data on the physical characteristics of building materials and installed equipment, whereas the new book covers functional relationships and space requirements and typical layouts for specific building types. Included in its wide coverage are small homes, motels, hotels, schools, office buildings and theaters.

In each case, charts, tables and innumerable sketches provide necessary design information for making comprehensive programs and also for making schematic and preliminary drawings.

What Engineering Offers

Engineering as a Career—By Ralph J. Smith. 365 pp. McGraw-Hill Book Co., Inc., New York, N. Y. $4.75.

In striving to acquaint beginning students with engineering as a career, this book sets an important goal. Too often students start on the road to an engineering degree, only to learn too late they are not suited for it. In the preface, the author—head of a college engineering department—sets these objectives for his book:

- To acquaint beginning students with engineering as a career.
- To indicate the qualifications, duties, and responsibilities of engineers.
- To define the engineering profession in terms of functions as well as branches.
- To provide motivation for the study of pre-engineering courses.
- To provide training in the philosophy and technique of problem solution.
- To preview basic engineering courses and demonstrate their application.

Although the combined text and problem book has been designed primarily for use in a freshman orientation course, it also offers good reading for anyone contemplating an en-

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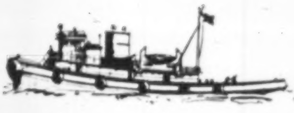

T-10

T-14

These scientifically-engineered turbochargers for your mobile, stationary or marine diesel engines are available now!

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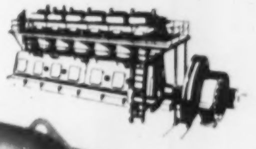

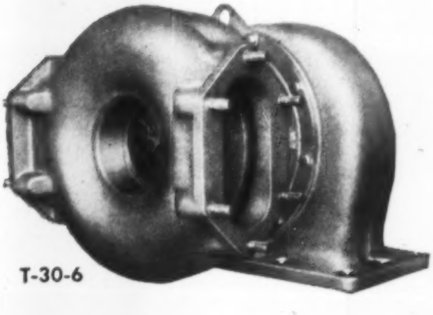

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T-30-2

AiResearch has incorporated into the design and manufacture of its turbochargers the greatest experience in the field of small turbomachinery of any company in the world! With these results:

AiResearch turbochargers increase power up to 100%. The only limitation is the design and application of your engine.

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They're easier to maintain than any other turbochargers. A removable rotating assembly simplifies and reduces maintenance.

They allow your diesels to operate at full efficiency from sea level to more than 8000 feet.

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MODEL	T-10	T-14	T-15	T-30-2	T-30-6
Diameter — in. nom.	9	11.5	15.25	15.25	16
Length — in.	9	14.12	16.75	17.25	21.75
Weight — lb.	40	95	125	135	195
Output — lb/min. (Standard Conditions)	25-40	35-65	35-65	70-95	115-175

THE GARRETT CORPORATION

AiResearch Industrial Division

9225 South Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND SPECIALIZED INDUSTRIAL PRODUCTS gineering career. Some portions of the book, such as Chapter 8 on the economic status of engineers, present information that will be of interest to older engineers as well. This chapter includes data on: growth of the engineering profession; distribution of engineers by major industry field; functions performed by branches of engineering, level of education of engineers by branch, and earnings of engineers.

The first part of the book pertains to the engineering profession as a whole. It includes a brief history of engineering and a discussion of the branches and functions of engineering.

Part two deals with college training: cost of a college education, suggestions for college work, oral and written reports, mathematical tools, and the engineering method of problem solution.

Part three previews engineering materials, mechanics, thermodynamics, electrodynamics and engineering economy. The book finally concludes with a chapter on who should study engineering.

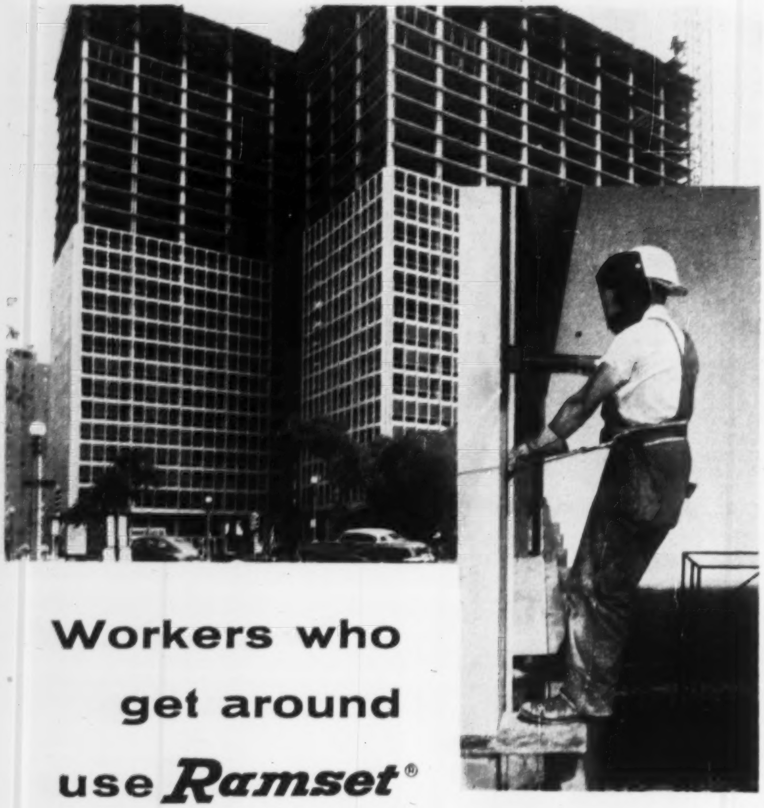
Assignments are given at the end of each chapter for course work. In many instances the student is required to work out actual elementary engineering problems. Text is written in a clear and concise manner, and there are many photographs and drawings.

Detailing for Architects

ARCHITECTS' DETAILED SHEETS—Edited by Edward D. Mills 228 pp. Iliffe and Sons Ltd., London, and Philosophical Library, New York, N. Y. $12.00.

This volume, second of a series, comprises a new selection of detail sheets from *The Architect and Building News*. Following previous practice, all details are from current buildings and examples have been drawn from several countries. Of particular interest are those details taken from the 1951 Festival of Britain; many interesting architectural features, now demolished, are here recorded. The details are recorded in both drawings and photos.

To facilitate quick reference, the material is divided into categories—balconies, entrances and shop fronts, fireplaces, fittings, staircases, walls and miscellaneous structures. The execution of ingenious and difficult details, as well as some standard types, are presented. The material within each grouping is rather diversified; wall details include both the curtain walls of the United Nations Secretariat Building and the structure of a "green-



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Mayari R . . . High-Strength, Corrosion-Resisting Steel keeper's" office, while the section on fittings ranges from an intricate display stand to construction of a litter bin.

At the back of the book is a glossary of building terms in English, French, German and Spanish.

This book will be of special interest to architects and architectural students; it should prove a useful supplement to existing textbooks.

Miscellaneous Notes

• **Air Pollution Controls**—an eight-month study by ASME—is summarized in "Instruments for the Study of Atmospheric Pollution." Designed to be the most complete work of its kind, the book lists hundreds of instruments for sampling and analysis of air pollutants, ranging from simple filters to electrostatic precipitators. Names and addresses of manufacturers are also provided. Priced at $2.00, the book is published by the American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y.

• **Flood control model**—Investigations conducted on a hydraulic model of the flood control project proposed for the Anacostia River in Maryland and the District of Columbia, resulted in significant design changes. Plans for the construction along the Northwest Branch of the river, included a 550-ft high-velocity concrete channel, but experiments showed that unstable flow not contained within the channel's paved section under some conditions of flow would develop. The necessary design revisions are mentioned in the report. "Flood-Control Project for Northwest Branch, Anacostia River, District of Columbia and Maryland." Waterways Experiment Station, U. S. Corps of Engineers, Vicksburg, Miss. Technical Report 2,434. $0.75.

• **Solar energy** papers presented last November at the World Symposium on Applied Solar Energy are now available at $5, postpaid, from the Association for Applied Solar Energy, 204 Heard Bldg., Phoenix, Ariz. Subjects covered in the 300 pages (30 papers) include solar water heaters, collector design and solar energy conversion.

• **Winter construction** is the subject of a 30-page bulletin, which tells how construction can be carried out satisfactorily during winter months with little extra cost and with some advantages over summer construction. Subjects covered include site organization, excavations and foundations, concrete, masonry, materials used for protecting winter work, and heating equipment for winter work. Division of Building Research, National Research Council, Ottawa, Canada. 10 cents.

• **How to reduce windstorm damage** and save lives and property is the subject of a 40-page booklet, "Windstorm Damage Prevention," published by the National Board of Fire Underwriters. It calls attention to construction details that can reduce losses. It also suggests several precautions that should be taken when a severe windstorm approaches. Single copies of the booklet can be obtained free by writing to NBFU, 85 John St., New York 38, N. Y.

New Engineering Books

A Treatise on Surveying, Volume Two: More Advanced Techniques and Modern Development:—438 pp. Philosophical Library, Inc., 15 E. 40th St., New York 16. $10.00.

Mechanical Vibrations—J. P. Den Hartog. Fourth Edition. 436 pp. McGraw-Hill Book Company, 330 W. 42nd St., New York 36. $9.00.

Hydrodynamics—634 pp. Dover Publications, 920 Broadway, New York 10. $2.50.

Asympototic Expansions—by Prof. A. Erdelyi. 108 pp. Dover Publications, 920 Broadway, New York 10. $1.35.

Elastic Behavior of Structural Members—by Odd Albert. Opla Company, Box 266, Belmar, N. J. $6.00.

The Structure of Turbulent Shear Flow—by A. A. Townsend. 315 pp. Cambridge University Press, 32 E. 57th St., New York 22. $7.50.

The Ultimate Load Theory Applied to the Design of Reinforced and Prestressed Concrete Frames—by Prof. A. L. L. Baker. 91 pp. Concrete Publications Limited, 14 Dartmouth St., Westminster, S.W., 1, England. $4.00.

Nuclear Fuels—by David H Gurinsky and George J. Dienes. 364 pp. D. Van Nostrand Company, Inc., 120 Alexander St., Princeton, N. J. $7.50.

Atoms and Energy—by Prof. H. S. W. Massey. 174 pp. Philosophical Library, Inc., 15 E. 40th St, New York 16. $4.75.

ASTM Standards on Copper and Copper Alloys—642 pp. American Society for Testing Materials, 1916 Race St., Philadelphia 3. $5.75; to members $4.40.

Symposium on Atmospheric Corrosion of Non-Ferrous Metals—Special Technical Publication No. 175. 158 pp.

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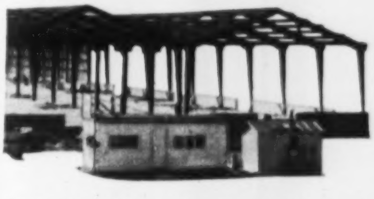

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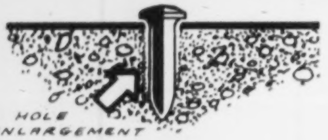

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American Society for Testing Materials, 1916 Race St., Philadelphia 3. $2.75; to members $2.00.

Abacs or Nomograms—by A. Giet. 225 pp. Philosophical Library, Inc., 15 E. 40th St., New York 16. $12.00.

Reports and Pamphlets

Hexagon Head Cap Screws, Slotted Head Cap Screws, Square Head Set Screws, and Slotted Headless Set Screws—American Society of Mechanical Engineers. $1.50.

Dynamic Response in Three Dimensions of Linear Elastic Structures to Independent Motions of Multiple Supports—by R. E. Blake and G. J. O'Hara. 23 pp. Office of Technical Services, U.S. Dept. of Commerce, Washington 25. 75¢.

Vapor Barrier Materials for Use with Slab-on-Ground Construction and as Ground Cover in Crawl Space Use—Building Research Institute, 2101 Constitution Ave., Washington 25. $1.50.

Evaluation of Coefficients of Subgrade Reaction—by Karl Terzaghi. Harvard Soil Mechanics Series No. 51. Pierce Hall, Harvard Universite, Cambridge, Mass.

Floor, Ceilings and Service Systems with Steel Construction—American Institute of Steel Construction, 101 Park Ave., New York 17.

List of American Standards—56 pp. American Standards Association, 70 E. 45th St., New York 17. No charge.

How American Standards are Made—19 pp. American Standards Association, Dept. PR, 70 E. 45th St., New York 17. No charge.

Standard Types of Building Construction—NFPA Standard No. 220. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. 25¢.

Selected Bibliography on Building Construction & Maintenance—Report 140. U.S. Government Printing Office, Division of Public Documents, Washington 25, D.C. 30¢.

Journal of the American Concrete Institute Issues Five-Year Index—72 pp. American Concrete Institute, 18263 W. McNichols Rd., Detroit 19, Mich. 35¢.

Fire Resistance Ratings—Appendix 4.1.B. Part 4—Design. Section 4.1. National Research Council, Ottawa, Canada. 25¢.

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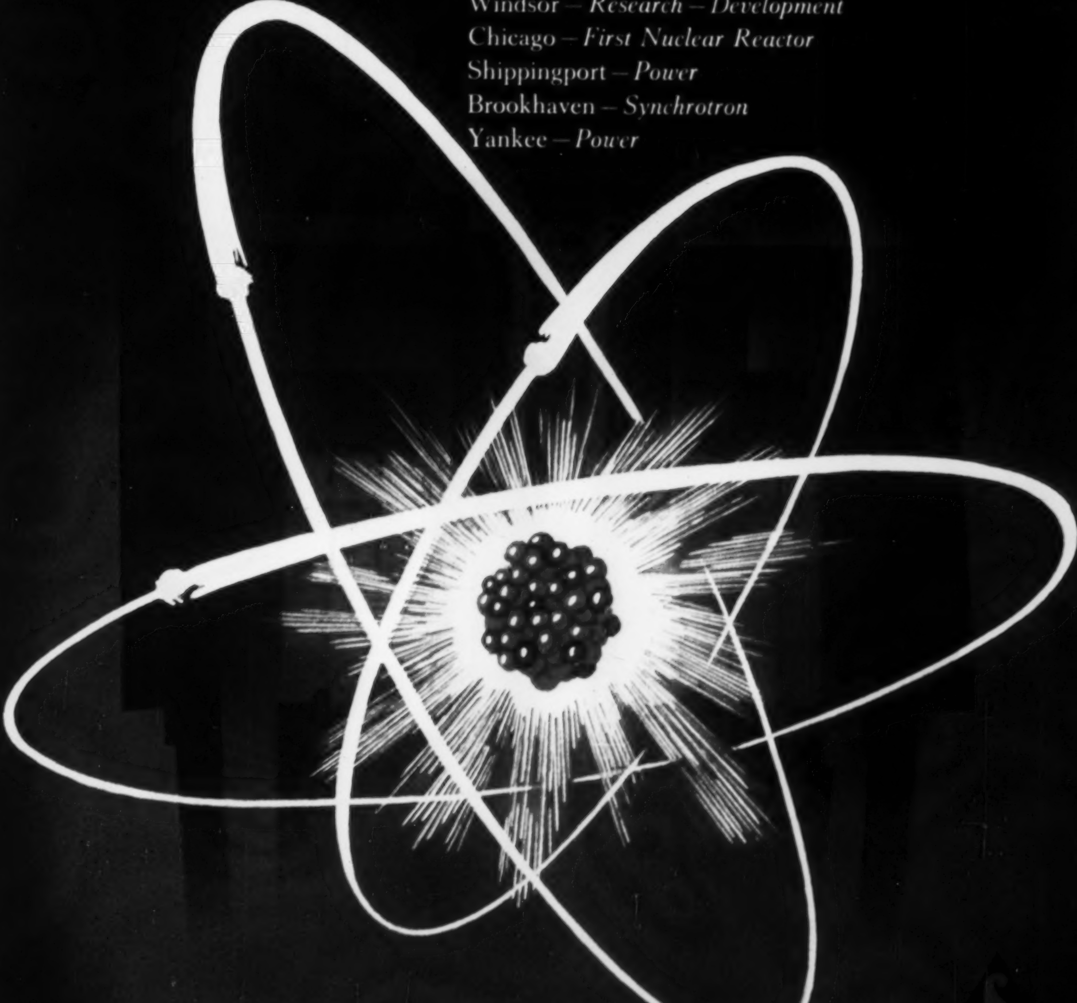

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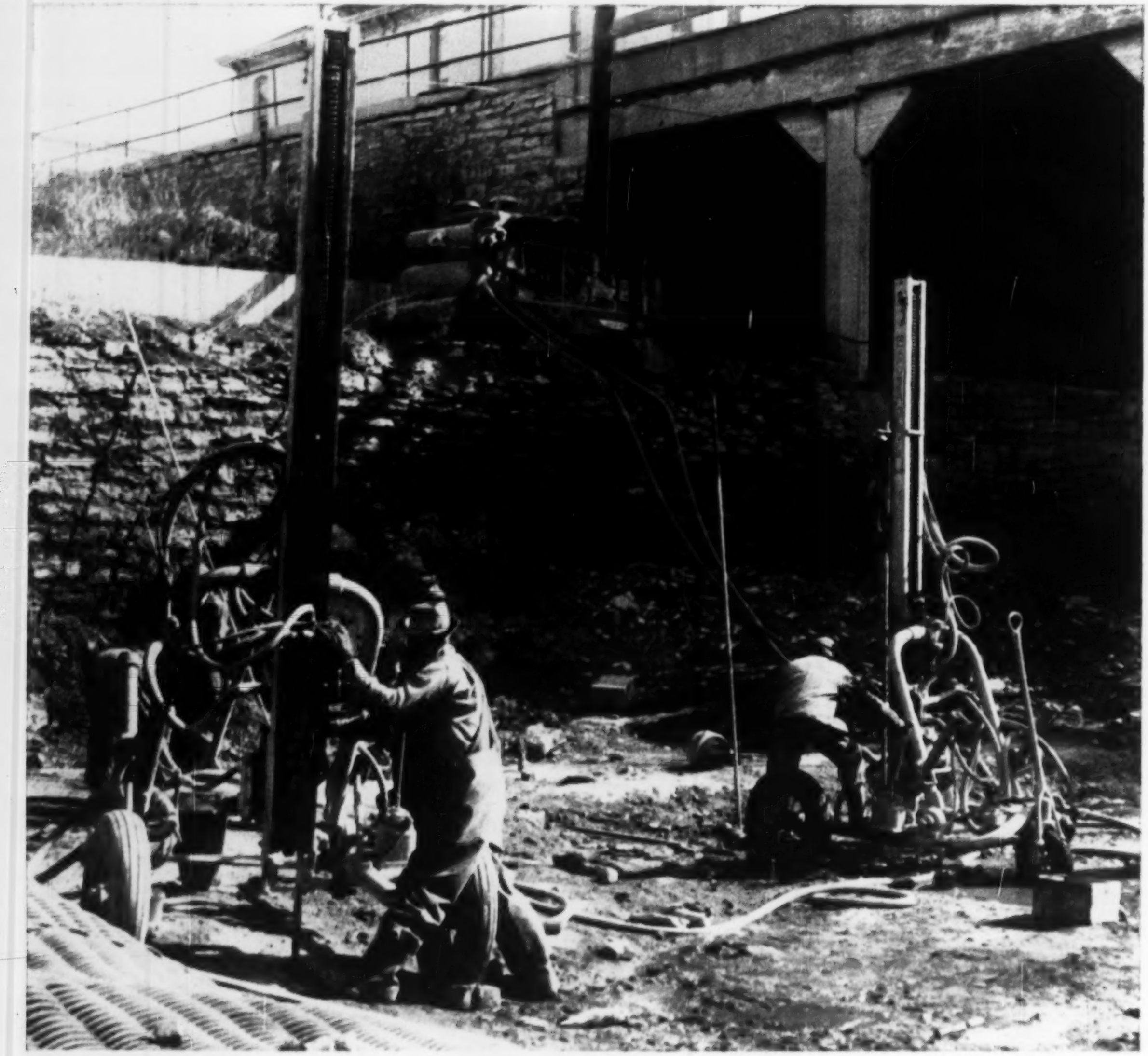

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Licensing Requirements Prevent Recovery of Fee

An architectural partnership has been denied the right to collect a fee based on work done in the name of the firm by an unlicensed member.

The circumstances: One of the members of the firm was not licensed; some of the certificates of payments issued by the firm were signed by the unlicensed architect; after his name was placed the word "architect".

The firm had not been paid in full for services rendered and sued to recover the balance due. Recovery was denied.[1]

While the partnership could validly contract for architectural services as long as the services were rendered by licensed architects, the court said, it could not recover for services based on the work of an unlicensed architect.

(1) Palmer v. Brown, 273 P. 2d 306.

Oral Testimony Was Allowed To Refute Written Contract

When an oral agreement has been reduced to writing, courts generally will not permit introduction of oral testimony to vary the terms of the written agreement. But an exception is made in the case of fraud or duress.

This happened in a federal case that started with an oral sub contract for construction work. After the subcontractor had performed considerable work on the job, he was asked to execute a written contract which required him to perform work not called for by the original oral contract.

The subcontractor, at the time he was asked to execute the written contract, was on the verge of insolvency, and the prime contractor refused to pay him for the work performed unless he executed the written contract.

The subcontractor later went into bankruptcy and an action was brought against the prime contractor to recover compensation for the work performed which was not required under the original oral agreement.

At the trial, the attorney for the prime contractor objected to the admission of testimony to show that the written contract required the subcontractor to perform work not called for by the original oral agreement, claiming that it was not proper to admit oral testimony to vary and contradict the terms of a written agreement.

The trial court permitted the admission of the testimony, holding that it did not involve contradiction or variation of a valid written agreement and since the parties proceeded to operate under the oral agreement, such testimony was admissible to show the real agreement between the parties.

Judgment was granted in favor of the subcontractor and this was affirmed on appeal.[1] The court found as a fact that the subcontractor had executed the written contract under duress.

(1) John A. Johnson & Sons, Inc. v. United States etc., 229 F. 2d 713, U. S. Court of Appeals, Sixth Circuit, Dec. 13, 1955.

Sub Held Not Responsible For Defects That Developed

In the absence of any contract provision to the contrary, a subcontractor has no obligation to correct work defects for which he is not responsible. The burden of proving responsibility is on the party that attempts to sue.

This principle was applied in a case that involved the roofing work of a subcontractor on construction of a Veterans Administration building in Utah.

The roofing work was substantially performed and periodical payments were made leaving a balance due which the prime contractor refused to pay, claiming credits for this amount because of expenditures for roof repairs. The subcontractor brought the action to recover the amount it claimed was due under the contract. The case was tried by the court without a jury and a judgment was rendered in favor of the prime contractor. The subcontractor appealed, claiming that the defects in the work that subsequently developed were not the result of any improper workmanship on its part. The prime contractor contended that the sub was obligated by the terms of the contract to complete the roofing in a manner satisfactory to the government upon final acceptance of the entire project and that it was bound to make all repairs at its expense regardless of the cause of the damage. The Appellate Court[1] held that there was nothing in the contract that imposed an obligation on the sub to remedy defects in the work for which it was not responsible.

The Appellate Court also ruled that the trial court erred in holding that the burden was on the subcontractor to prove the amount of defective work. The court stated: "It is a settled rule that in a subcontractor's

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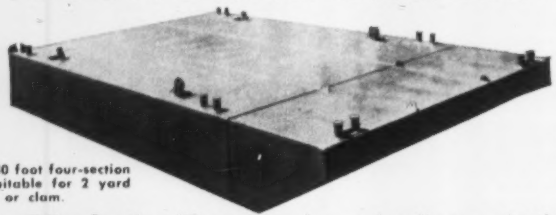

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action against the contractor, where a substantial performance of the contract is shown, the contractor, in order to avail himself of a set-off, has the burden of proving damages sustained on account of defective work done by the subcontractor."

Acceptance Not a Release If Contract so Provides

Parties to a contract may provide that the owner can recover for defects in the work even after the work has been accepted.

A contract for construction of a cooperative housing project approved by the F.H.A., for example, contained the following provisions:

"Correction of Work After Final Payment. Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom which may appear within one year from the date of substantial completion.

"Arbitration—All disputes, claims or questions subject to arbitration under this contract shall be submitted to arbitration in accordance with the provisions, then obtaining, of the Standard Form of Arbitration Procedure of the American Institute of Architects, and this agreement shall be specifically enforceable under the prevailing arbitration law and judgment upon the award rendered may be entered in the court of the forum, state or federal, having jurisdiction."

The indemnity bond furnished by the contractor contained the following provision: "No suit, action or proceeding by reason of any default whatever shall be brought on this bond after two years from the date on which the final payment under the construction contract falls due."

The project was completed and final payment to the contractor was approved by the F.H.A. Thereafter defects appeared in the work and an action was brought to recover the cost of remedying the defects.

The contractor made an application to the court to dismiss the action, claiming that the approval of the work by the F.H.A. barred the right to any action on the part of the owner. The court denied the application,[1] holding that the provisions of the contract referred to made it clear that the claim for compensation for

(1) United States v. Wunderlich Contracting Co., 228 F. 2d 66, U. S. Court of Appeals, Nov. 25, 1955.

defective performance or other breach of contract would survive any determination the F.H.A. might render in the discharge of its duties and functions.

(1) Knolls Cooperative Section No 1 v. Hennessy, 148 N. Y. S. 2d 669, N. Y. Supreme Court, Bronx County, Dec. 30, 1955.

Engineer's Determinations Must Be Free From Fraud

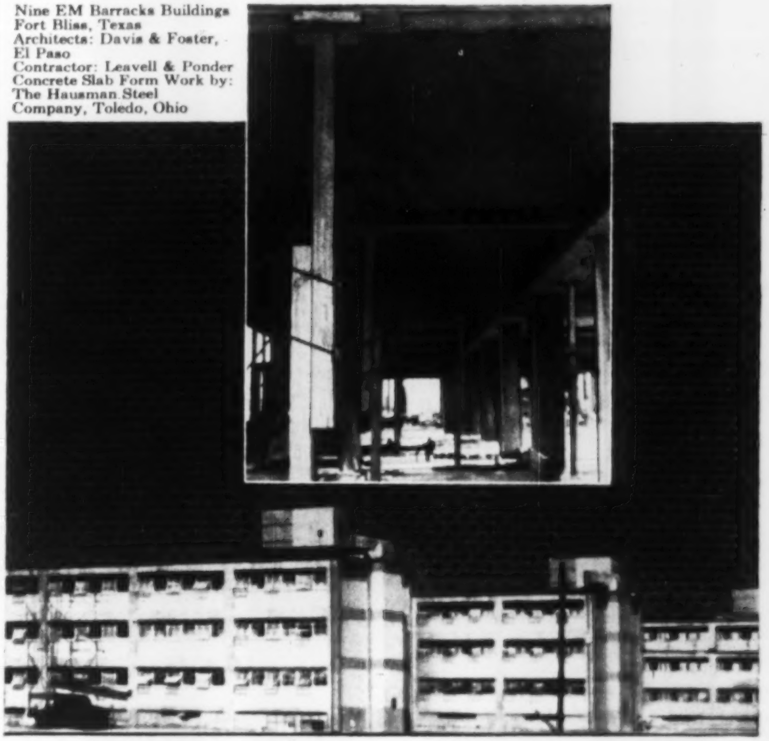
Reversing a lower court decision[1] relating to a New Jersey contract between Terminal Construction Corporation and a county sewer district authority, the New Jersey Supreme Court has held[2] a contractor is not bound by decisions of the engineer, even where the contract makes them conclusive, if the engineer acts arbitrarily or with gross negligence.

The Terminal contract provided that all disputes arising out of the work would be referred to the engineer, that his decision would be binding and conclusive, and that the issuance of a certificate for payment would be a condition precedent to the right of the contractor to receive payment. The contractor claimed he was entitled to compensation for certain work for which the engineer had refused to issue a certificate for payment, claiming that the withholding of such certificate constituted an act of fraud on the part of the engineer.

The action was tried in the Law Division of the Superior Court of New Jersey and the contractor obtained a judgment. The Authority for which the work was done had counterclaimed for damages resulting from defects in the work and for delayed performance. Both parties appealed to the Appellate Division of the Superior Court, which reversed the judgment of the trial court and directed that a new trial be had, the Appellate Division holding that the evidence produced at the trial did not justify a finding that the refusal of the engineer to issue a certificate of payment was based on fraud.

The contractor appealed to the Supreme Court, which reversed the judgment of the Appellate Division and reinstated the judgment of the trial court but reduced the judgment.

The Supreme Court pointed out that two important issues were involved in the litigation: (1) Was the engineer the agent for the Authority, and (2) Was it necessary to show actual fraud, in the sense that the term is usually used, to entitle the contractor to a recovery where the engineer has ruled that the contractor



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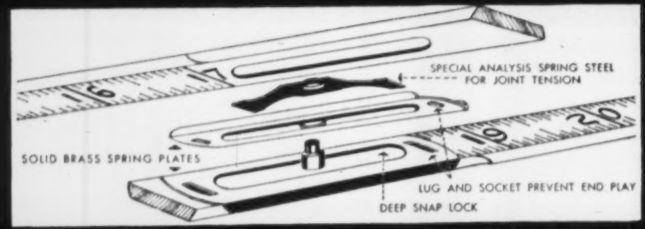
SPECIAL ANALYSIS SPRING STEEL FOR JOINT TENSION
SOLID BRASS SPRING PLATES
LUG AND SOCKET PREVENT END PLAY
DEEP SNAP LOCK

Exclusive on "RED END" Folding Wood Rules

X-46 EXTENSION RULE
6" brass slide for inside measurements. 50% heavier wood for extra heavy duty.

066 — RED END RULE
All Red End features but without extension.

066-D ENGINEERS RULE
Red End quality, marked feet, 10ths and 100ths; and feet, inches and 16ths.

Exclusive Lufkin "Spring Lock" joints lock securely . . . eliminate end play . . . and maintain accuracy. Red End rules are straight-grained hard maple, tough and flexible. Bold black markings embedded in wood. Plastic coated for longer wear.

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PRECISION TOOLS
FROM YOUR SUPPLY STORE

THE LUFKIN RULE COMPANY
SAGINAW, MICHIGAN

BETTER MEASURE WITH LUFKIN

399

is not entitled to extra compensation for the work involved.

As to the claim by the Authority, that the engineer was not its agent, the court held that in view of the fact that the contract gave the engineer broad authority to issue orders as to work and to determine disputes, he was the agent of the authority and the contractor was entitled to payment for work performed by him where the same was done in compliance with instructions and orders given by the engineer.

As to the claim made by the contractor that the refusal of the engineer to issue a certificate of payment for the work in question constituted an act of fraud, the court stated that acts or inaction on the part of the engineer in the exercise of the authority vested in him under the terms of the contract is characterized as being fraudulent in a legal sense, where the engineer's acts or inaction is arbitrary and not based on reason, and that such rule applies even where the owner was not a direct participant in the engineer's fraud. The term "fraud" when applied in a construction contract giving the engineer the power to act as the agent of the party for whom the work is being done, has a broader meaning that it ordinarily has, and includes arbitrary action or gross mistake.

"It has been said," the court noted, "that the architect or engineer occupies a position of trust and confidence and that he should act in absolute and entire good faith throughout, and when he acts under a contract as the official interpreter of its conditions and the judge of its performance, he should side neither with the Owner or Contractor, but exercise impartial judgment."

The New York Court of Appeals,[3] in discussing a similar contract provision, held that a contractor is entitled to recover where the certificate has been arbitrarily withheld or where it has been withheld as a result of an erroneous interpretation of the law or where the decision of the engineer is patently erroneous, under which circumstances the act of the engineer is equivalent to being made in bad faith.

(1) Terminal Const. Corp. v. Bergen County Hackensack River Sanitary Sewer District Authority, 112 A. 2d 762. See, E. N. R., July 19, 1956, pages 82-85.
(2) Terminal Const. Corp. v. Bergen County etc., 113 A. 2d 787, 18 N. J. 294
(3) Smith Contracting Co. v. City of New York, 240 N. Y. 491

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

"WEATHER-PROOF" YOUR PUBLIC WORKS WITH STEEL PIPE SNOW AND ICE MELTING!

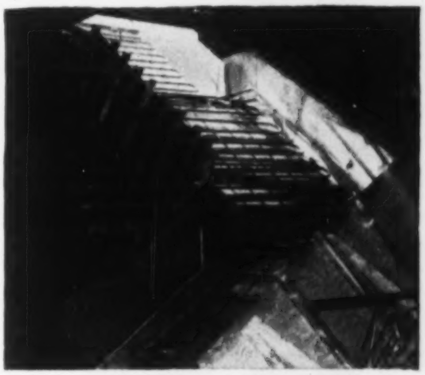
No "traffic" handling public works of the future will be really modern without provision for "automatic" removal of snow and ice!

Pedestrian, vehicular, or air-borne, it doesn't matter . . . the increasing volume and peak load conditions imposed by today's and tomorrow's traffic, demand uninhibited "flow" at *all* times.

So it is that public planners and engineers are turning to steel pipe snow and ice melting systems for such great projects as in the ramp and stairway of the Staten Island Ferry Building, the Indiana Turnpike interchanges, the sidewalks around great new buildings, on bridge floors, airports, congested city street crossings, elevated approaches and ramps.

Steel Pipe is first choice for these installations because its known economy makes investment in "automatic" melting economically practical. Add the advantages of formability, workability, weldability and reliability and you know why steel pipe is the most widely used in the world . . . for snow melting, radiant heating, plumbing, fire sprinkler systems, power, steam and air transmission.

Send for the free 32 page booklet "Steel Pipe Snow Melting and Ice Removal Systems"



Even the open stairway of the Staten Island Ferry Building is "snowless" . . . each step-tread concealing one length of 1" steel pipe to melt snow and ice.

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is First Choice

Committee on
STEEL PIPE RESEARCH
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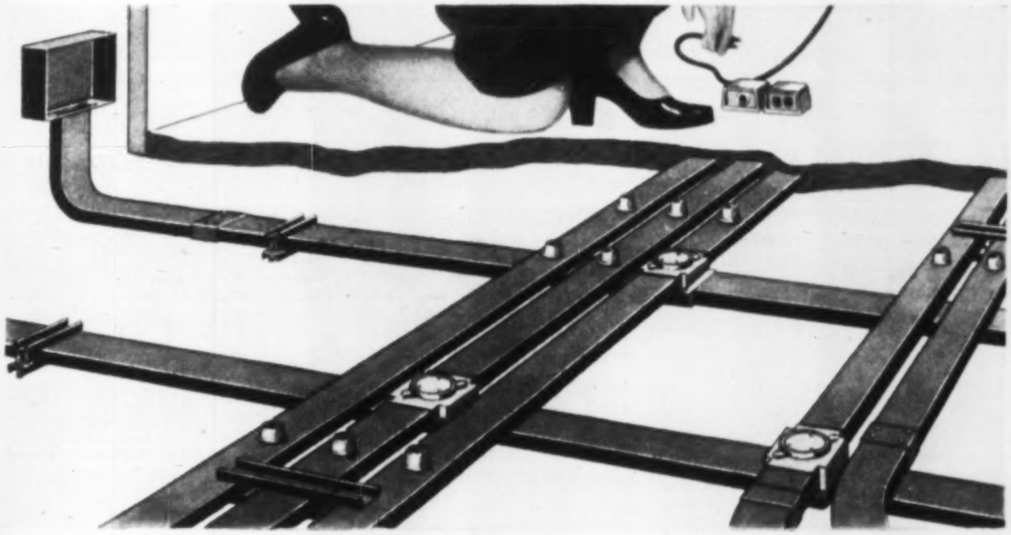
Locate electrical outlets wherever needed...now or in the future!

You can plan and build so that every square foot of floor space is available for electrical use. Outlets for typewriters, dictating machines, calculators, telephones, intercoms, lighting, postal machines and other electrically-operated equipment can be arranged at will as the need arises. Any one of General Electric's three underfloor wiring systems provides for maximum use of floor space. This means substantial space economies in your own office . . . and greater profit and flexibility when you rent to others.

Determine which of the three systems shown at the right is best suited to solve your power distribution problems now and in the future. For complete details, get in touch with your nearest General Electric Construction Materials district office or write Section C67-932, Construction Materials Division, General Electric Co., Bridgeport 2, Conn.

General Electric underfloor wiring—3 SYSTEMS

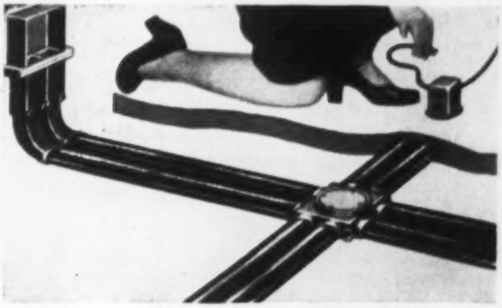


1. for two-level distribution—General Electric's New Steel System

This new all-steel system provides complete flexibility in layout and design because there are no limitations to the duct pattern in either the feeding or distribution portion of this two-level system. Use as many ducts as you like. Separation of services allows unobstructed runs with no crossovers or crossunders. Wire pulling is easier and circuits are easy to trace. New steel duct (4-square inch cross-sectional area) provides for increased wiring capacity.

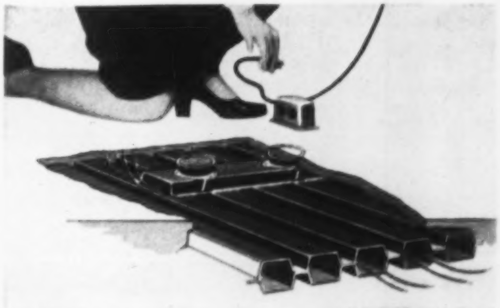
2. for single-level distribution— General Electric Fiberduct

Here's a widely accepted underfloor electrical raceway system that provides a good distribution of electrical outlets for many office operations. Yet the cost is low because Fiberduct is made of a strong, yet inexpensive, fibrous compound that can be sawed and fitted easily.



3. for cellular construction— General Electric Q-Floor wiring

Q-Floor wiring is designed for installation in cellular steel subflooring. It makes it possible to convert every cell into a raceway . . . makes every square foot of floor available for present and future electrical use. No costly alterations, no litter, no tie-up of space or lengthy interruption of office routine, no matter how much or how often your electrical requirements change.



Progress Is Our Most Important Product

GENERAL ELECTRIC

A MESSAGE TO AMERICAN INDUSTRY • FOURTH OF A SPECIAL SERIES

THE SHORTAGE OF SCIENTISTS AND ENGINEERS:

What Caused It?

WHY is the United States confronted with a serious shortage of scientists and engineers?

One reason, discussed in earlier editorials in this series, is that the increasingly complex technology needed for national security and for an expanding economy has raised enormously the demand for technically trained people.

But it is clear also that too little has been done to increase the supply of scientists and engineers and to make most effective use of the limited number now available. It is with this second reason for the shortage that this editorial deals.

Too few bright young people have been attracted to careers in the sciences and engineering. Many with technical training have been leaving these professions, with the exodus from teaching being especially alarming. And the technical talent now employed in industry, government and education is, in too many instances, being utilized less effectively than it might be.

Paying for a Miscalculation

A legacy of the depression provides part of the explanation for the current shortage of young people entering scientific and engineering careers. Because of low birthrates in the 1930s, there are now about one million fewer boys and girls of college age than there were in the early 1940s. Not until 1960 will there be as many in the 18-21 age group as in 1945. And from the brightest young people of these ages must come, not only scientists and engineers, but the new members of all the professions needed by our growing economy.

A miscalculation in the late 1940s, when our future needs in various occupations were being gauged, provides another part of the explanation. Occupational counselors and high school students were advised that, because of heavy postwar enrollments in engineering and other technical fields, "it is likely that the shortages of trained men will be alleviated in a few years."[*]

Instead of being alleviated, however, the shortages became more acute. Job opportunities grew rapidly, while graduating classes dwindled. Fewer than half as many students received degrees in engineering in 1955 as in 1950, the peak postwar year. The trend has been reversed, but graduating classes will not be large enough to narrow the gap for several years.

Lost Talent

Beyond these temporary conditions, there is another explanation for the failure of the number of scientists and engineers to keep pace with our rising needs. This is the staggering loss between high school and college of young people with the talent to be successful in science and engineering. **Last year between 60,000 and 100,000 high school graduates of college ability failed to enroll in college for financial reasons and perhaps an additional 100,000 did not enter college because of lack of interest.**[†]

Of the most intelligent 20 percent in the group of college age, fewer than half enter college and only about a third graduate from college. Educational authorities estimate that fewer than 2 percent of those in the college age group who are mentally equipped to obtain Ph. D. degrees will actually obtain such degrees.

Another crucial stage is in the high

---

[*] U. S. Bureau of Labor Statistics, *Occupational Outlook Handbook* (Bulletin 940), p. 63.

[†] Charles C. Cole, Jr. (assistant dean, Columbia College, Columbia University), *Higher Education*, November 1955.

schools, where future scientists and engineers receive their first training in science and mathematics. There are serious weaknesses and signs of deterioration in this vital part of our educational system.

One-quarter of all American high schools offer no chemistry or physics. One-quarter offer no geometry. In many of the schools offering science and mathematics courses, the quality of instruction is low. Last year in the New York City school system alone more than 10,000 students were in science classes taught by teachers who were not trained in science.

This is a situation that threatens to become much worse. Between 1950 and 1955 the number of graduating teachers qualified to teach high school mathematics dropped 53 percent and those qualified to teach science dropped 59 percent. Furthermore, only about 60 percent of the graduates certified to teach mathematics or science in 1955 entered teaching as a career.

On the students' side — partly because of inadequate guidance programs — there has been a drift away from science and mathematics courses. The result of low student interest, and poor high school programs, in science and mathematics is virtually to foreclose careers in science and engineering to many bright young people. They miss the necessary basic training. Many who do attempt to obtain college training in these fields are ill-equipped. Engineering school deans report that fully half of their students enter with deficiencies in mathematics.

Misuse of Trained People

Scientific and engineering careers have long had a reputation for low salaries and limited opportunities for advancement. In recent years starting salaries have sky-rocketed and have been accorded wide publicity. But unfortunately there has been much less improvement in the salaries paid experienced engineers and scientists, especially in government and education. This has lowered the morale of experienced men and provided an incentive to desert engineering and research positions for higher paying jobs in sales or management.

Engineers and research scientists complain also that too much of their time now is spent on tasks that draftsmen and technicians could perform. Unfortunately for easy solution of this problem, however, there is an acute shortage of technicians as well. Worse still, there are indications that some companies in industries using large numbers of engineers have gobbled up technical manpower at a faster rate than they can effectively employ these scarce people.

Another drain on the supply of newly-trained scientists and engineers is military service. About 8,000 of this year's 27,000 engineering graduates were in ROTC programs and committed to active duty after graduation. Dr. A. W. Davison, chairman of the Engineering Manpower Commission of the Engineers Joint Council, says that in most cases no attempt is made by the Armed Services to assign these young officers to duties for which their engineering education specifically prepared them. They are not only withheld from industry and education for two years but also are not utilized in defense programs requiring more engineers and research scientists.

Some of the causes for the present shortage of scientists and engineers — bad advice a few years ago and a college age group held down by depression birthrates in the 1930s — are gradually being overcome. But others, such as the deterioration of science and mathematics training in our public schools and the many instances of ineffective utilization of scarce technical talent, enjoy no such prospect of automatic correction. The final editorial in this series will deal with some practical suggestions for meeting these problems.

This is one of a series of editorials prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C McGraw

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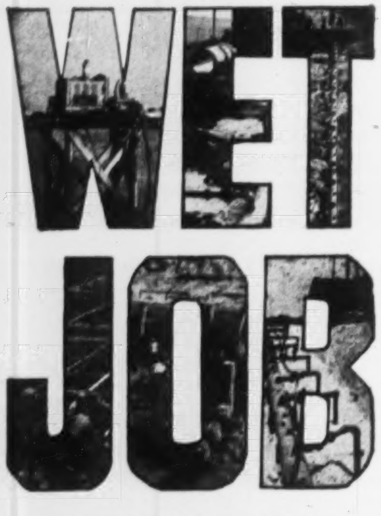

IF IT'S A WET JOB

PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN WELLPOINT CORP.

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Kinnear *originated* the upward-acting door with the curtain of interlocking steel slats. For more than half a century, Kinnear has built doors *exclusively*—your assurance of highest quality. Write for Kinnear catalog!

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Unit Prices

Washington, D. C., Bridges Top Estimate by 19.5%

Two prestressed concrete bridges to cost $374,698 will replace obsolete structures in Rock Creek Park, Washington D. C. Michael Baker, Jr., Washington, is the consultant for the National Park Service. Robert E. Horne is chief engineer.

The 66-ft single span on Kalmia Road will be pretensioned and 38.6 ft wide. The 88.5-ft single span on Milk House Ford will be post-tensioned and 36.6 ft wide. Both carry an asphaltic concrete roadway, 26 ft wide on Kalmia Bridge and 24 ft on the other, a 4.6-ft sidewalk and an 8-ft concrete-slab bridle path.

Lump sum prices for the superstructures are $31,600 for the pretensioned 66 x 38.6-ft span and $41,800 for the 88.5 x 36.6-ft structure. This gives a cost per sq ft of $12.41 for the pretensioned and of $12.91 for the post-tensioned superstructure without surfacing.

Sub- and superstructure total $93,000 for Kalmia Bridge and only $80,400 for Milk House Bridge, although this structure is 22.5 ft longer. The difference is caused by the higher price of Kalmia Bridge substructure.

The contract went to Triangle Construction Co., Inc., of Silver Spring, Maryland, on a low bid, 19.5% above the engineer's estimate and 2.85% below the second low of three bids. The price includes $4,910 for topsoil, seeding and mulching, which the Park Service has reserved the right to let under a separate contract.

Specifications call for concrete with compressive strengths of 3,000, 4,500 and 6,000 psi.

Stone masons are paid $3.525 and unskilled laborers $2.10 per hour.

The three bidders are:

1C	Triangle Const. Co., Inc., Silver Springs, Md.	$374,698
2	Alton Engineering Co., Inc., Washington, D.C.	385,667
3	Princemont Const. Corp., Silver Springs, Md.	422,049
EE	Michael Baker, Jr., Washington, D.C.	313,582

Bids 6-12-56 Items	Unit	Quantity	Unit Prices 1C	2
Excav, struct	cy	3,500	$8 80	$10 20
channel	cy	5,600	4 95	4 00
roadway	cy	1,500	1 10	1 20
Trees, remov, 8-18"	ea	49	44 00	50 00
over 18"	ea	9	110 00	100 00
Borrow excav, fill	cy	18,800	2 30	2 50
Superstruct, Kalmia Rd bri	ls	job	31,600	34,100
Milk-House Ford bri	ls	job	41,800	41,256
Substruct, Kalmia Rd bri	ls	job	61,400	60,540
Milk-House Ford bri	ls	job	38,600	40,080
Footing, conc	cy	644	44 00	48 50
Bridle path, conc slab, Kalmia Rd bri	ls	job	264 00	200 00
Milk House Ford bri	ls	job	297 00	300 00
Curb & gutter, type A	lf	4,550	2 48	2 50
type B	lf	1,000	3 50	3 75
Riprap, mortared	sy	112	16 50	18 00
dumped	cy	160	17 60	12 00
Gravel, run of bank	t	3,473	2 75	3 00

Bids: 6-12-56 Items	Unit	Quantity	Unit Prices 1C	2
Base crse, asph conc, 2"	t	438	9 90	9 75
2½"	t	560	9 35	9 50
1"	t	220	12 00	11 50
Surf crse, asph conc, 1½"	t	336	11 50	11 00
2"	t	27	11 00	11 00
Wear crse, asph conc, 2"	t	46	13 20	11 00
Drain rdy, Kalmia Rd app	ls	job	5,000	5,325
Milk House Ford app	ls	job	3,960	4,250
Exist bri, remov, Kalmia Rd	ls	job	3,850	3,200
Milk House Ford	ls	job	2,400	1,800
Topsoil, seed & mulch*	sy	11,160	0 44	0 45
Railings, bridle path	lf	136	5 50	5 00
Elec ducts under rdy	lf	133	6 60	10 00
Alt: Fills using matls placed at site	cy	.....	2 50	2 90

Time to complete 250 calendar days
Liquidated damages $50 per day
* Owner reserved right to accept this item under separate contract. Total without this item $369,788

T-Beam Bridges, Montana

Two continuous concrete T-beam bridges in Big Horn County for the Montana State Highway Commission cost a total of $138,869 or $14.06 per sq ft of deck. Scott P. Hart is state highway engineer and Albert W. Jones is bridge engineer.

These identical bridges are 156 ft long with two 60-ft spans and 18-ft cantilever end spans. The 28-ft roadway is bordered by 1-ft 10-in. curbs. Center pier and end bents are of reinforced concrete, 27 ft high.

F. L. Flynn & Co., Billings, Mont., got the contract. Their low bid was 5.5% below the second low bid.

The contract includes the removal of a 120-ft steel pony truss with 21-ft concrete approach spans at both ends of each bridge.

Class A concrete requires 5.5 bags of cement per cu yd and Class AD concrete must contain 6.5 bags.

Wage rates range from $1.30 for common to $1.575 for skilled labor.

1C	F. L. Flynn & Co., Billings, Mont	$138,869
2	Walter Mackin & Son, Billings, Mont	146,947
5	N. A. Nelson Const. Co., Sheridan, Wyo	166,438

Bids: 6-4-56 Items	Unit	Quantity	Unit Prices 1 C	2
Steel, reinf	lb	156,834	$0 18	$0 17
Conc, cl A	cy	330	70 00	70 00
AD	cy	508 4	100 00	90 00
Bridge rail, steel	lf	619	10 00	12 00
Excavation, struct	cy	720	8 00	16 00
unclassif	cy	2,040	0 75	1 50
Exist struct, remov	ls	job	5,000	6,000
& maintain traffic	ls	job	10,000	12,000
Bearing piles, steel, furn.	lb	60,480	0 11	0 15
drive	lf	783	2 00	3 00

Date of completion: 7-31-57
Liquidated damages: $35 per day

Correction:

Where the Building $ Goes

Please correct your record on the office building in Bridgeport, Conn., (ENR Aug. 2, p. 62). The volume is 360,000 cu ft not 1800,000 cu ft. Cost per cu ft is $1.01 minimum, $1.24 average and $1.61 maximum instead of $1.80, $2.03 and $2.40 as published.

Tournatractor dozes brush, trees and stumps to clear airport site in Peru. Big, low-pressure tires roll over sharp, broken limbs without damage. Tires had been used 7000 hours when these pictures were taken.

How airport site in PERU

was cleared and leveled ahead of schedule

The sea-level cane fields owned by Negociación Tuman, near Chiclayo, Peru, are a long way from the company's main office at Lima. To shorten travel time for company personnel journeying to and from Hacienda Tuman, the company officials decided to build an auxiliary airport near the plantation.

Sr. Juan Bazo, Chiclayo, was commissioned to clear and level the airport site. For this work, he chose a fast 208 hp Tournatractor and an 11-yard LeTourneau-Westinghouse scraper.

These rubber-tired machines helped Sr. Bazo speed the project to completion 8 days ahead of schedule.

Tournatractor clears land

At the airport site, Tournatractor dozed out trees, brush, and broken stumps. It took only eight hours for the fast-moving, rubber-tired Tournatractor to clear an 11-acre tract in the airfield area. In the same 8-hour period, a crawler-tractor, of equal horsepower, and doing similar clearing work, completed only 7.4 acres of land.

Tournatractor dozes volcanic ash and sand, leveling for auxiliary airport in this dry, hot, sea-level climate. Tournatractor's optional "down-pressure" attachment made it easier to clear and level difficult materials.

Tournatractor levels land

After clearing was completed, the Tournatractor used its dozer blade to level the airport site. It also towed a scraper to dig drainage ditches, and to haul the fill needed to build the main runway up to grade.

Material moved was loose volcanic ash mixed with blow sand. This volcanic material is an extremely abrasive powder, so light that it is difficult to scraper-load and to doze. Such abrasive volcanic dust is particularly destructive to crawler-tractors. Grinding on pads, rails, and bushings, this volcanic dust can reduce the normal operating life of a crawler's track assembly by about 50%. In sharp contrast, Tournatractor's big rubber tires rolled through this abrasive material with no mechanical damage and no noticeable wear on tires.

Rubber tires compact fill

Hauling across newly-filled areas of the airfield, Sr. Bazo's rubber-tired tractor and scraper exhibited two other important advantages:

First: The eight big rubber tires on tractor and scraper compacted fill much better than the grousers on a crawler could have done. Tire compaction at this airport was so effective there was no need for further rolling or tamping.

Second: Big rubber tires, unlike a crawler's track-lugs, moved across freshly laid soil without digging up the finished surface.

Handles land improvement work

Before coming to this airport project near Chiclayo, Tournatractor demonstrated its versatility by handling a variety of land-improvement assignments: plowing, ripping, sub-soiling, clearing, and leveling for farms.

1 day's downtime out of 280!

Sr. Bazo's Tournatractor has also worked on flood-control operations. In changing a river channel, the rubber-tired tractor moved 32,700 cubic yards of material. While working on this job, machine experienced only 8 hours downtime out of 280 working days!

If your work includes similiar land-reclamation, or leveling projects, you will want to investigate the advantages of rubber-tired LeTourneau-Westinghouse tractors and scrapers. Write us for more information.

Tournatractor—Trademark Reg. U. S. Pat. Off. T-1020 AP-b

PERU
Piura
Chiclayo
Chimbote
Lima

During a one-year period, while towing a scraper, this Tournatractor traveled the following distances between projects in western Peru.

*5 days — 641 mi. — Lima-Piura
2 days — 248 mi. — Piura-Alta-Piura
2 days — 373 mi. — Piura-Chimbote
2 days — 373 mi. — Chimbote-Piura
1 day — 186 mi. — Piura-Chiclayo
12 days — 1821 miles

*(Machines never traveled more than 12 hours a day.

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS
A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Sept. 13 — Iron and Steel Products; Pipe
- Sept. 20 — Wood Products, Glass, Explosives, Chemicals
- Sept. 27 — Clay Products, Lime, Plaster Paint, Roofing, Wage Rates, Building Board, Lath, Insulation

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.' truckload del.' per block		CONCRETE Ready Mixed 1:2:4 del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.12a	$3.71a	$3.55	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.19	$0.195	$13.75g
Baltimore	4.04c	3.63c	3.43c	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.73	3.00af	....	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	12.30
Boston	4.75be	4.29a	4.55e	3.00a	3.00a	3.00a	1.65a	1.75a	....	....	.23	.275a	14.00h
Chicago	3.98a	3.57a	3.72	3.78‡b	3.78‡b	4.13‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.25	.25b	13.50
Cincinnati	4.22c	3.81c	3.90	2.19‡c	2.24‡c	2.24‡e	2.54‡c	2.54‡c	....	....	.205	.25a	12.40
Cleveland	N.A. in C.L.	3.59	....	2.15ef	1.95f	1.65	4.30‡a	4.30‡a	3.30‡a	3.30‡e	....	.23	16.15
Dallas	3.35a	2.95a	3.23	2.42	2.53	1.84	2.22	2.38	....	....	.11e	.2675	11.25
Denver	4.59a	4.09a	4.59	1.90	2.05	1.20	....	....	....	....	.22	.245a	10.70
Detroit	4.10a	3.45ae	3.73	4.25‡b	4.25‡b	4.00‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.22a	14.20
Kansas City	4.30b	4.10b	4.10	1.65	1.65	2.10‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	14.50b
Los Angeles	5.12ch	4.66ch	5.60	2.41‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	....	....	.145fm	.255m	12.96lh
Minneapolis	4.49a	4.08a	3.99	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.20	....	15.10f
Montreal	3.11d	2.86d	3.50	1.95‡a	2.20‡a	2.25‡a	1.95‡i	2.20‡i	....	....	.20	.20a	10.80ek
New Orleans	3.55a	3.15a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	13.65
New York	4.41a	4.00a	3.73	3.05bk	3.05bk	2.00bk	2.90bl	2.90bl	....	....	.25	.30b	15.70an
Philadelphia	3.88/4.27‡a	3.57/3.94‡a	3.49/4.12‡	2.85‡op	2.85‡op	2.35‡op	2.70‡	2.80‡	2.00	2.35	.22/.28	....	13.20de
Pittsburgh	4.15a	3.76a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.86/4.18c	3.46/3.78c	3.71/4.03	3.25am	3.10am	2.40/3.10am	1.60j	1.70j	....	....	.22	.28c	12.90
San Francisco	3.79c	3.39c	....	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28d	12.50c
Seattle	4.30a	3.75a	....	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	....	....	.26	.37	13.30j
Toronto	4.00	4.00	4.00	2.25‡	2.25‡	1.85‡	2.05	2.05	2.05	2.05	.25	.31c	14.55

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add $13.11 to $19.16 per car switching charges *g fob mill + freight *h LCL.

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots add. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1-3 mi zone. *p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *l Less 2% for cash *l F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.15†	Buffington, Ind	$3.10†	Steelton, Minn	$3.20†	Muskegon, Mich	$3.15†	Toledo, O	$3.15†
Clinchfield, Ga	3.15†	Independence, Kan	2.95†	Leeds, Ala	3.00†	Saginaw, Mich	3.15†	Milwaukee, Wis	3.20†
Kingsport, Tenn	3.15†	Hannibal, Mo	3.10†	Duluth, Minn	3.20†	Wyandotte, Mich	3.15†	Green Bay, Wis	3.20†
West Des Moines, Iowa	3.20†	Northampton, Pa	3.05†	Hudson, N. Y	3.05†	Buffalo, N. Y	3.25†	Ironton, O	3.15†
Nazareth, Pa	3.05†	Universal, Pa	3.20†	Alpena, Mich	3.05†	Oswego, N. Y	3.30†	Montreal City	2.56†
Bath, Pa	3.05†	Waco, Tex. (+ 10¢ tax)	3.10†	Detroit, Mich	3.15†	Cleveland, O	3.20†	W. Winfield, Pa	3.20†
Lesley, Pa	3.05†	Giant, S. C	3.25†	Howes Cave, N. Y	3.05†	Alsen, N. Y	3.05†	Security, Md	3.05†

† *Prices to hold for Third quarter of 1956.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Per gal. Tank car	Tank car	Drums
Atlanta	......	......	......	$27.60	$40.00	$0.15	$0.25	$0.114Pw	$0.276Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡		......	23.00i	......	.095i	0.185i	.10iwE	.19iwE	.10i	.105i	0.195i
Birmingham	......	62.00i	......	......	......	......	......	......	......	......	......	......
Boston	......	......	......	22.00ap	35.00ap	22.00as	30.00as	.095aFw	.195aFw	.095a	.095aG	.175aG
Chicago	150.00‡	85.00‡b	3.95/4.00‡j	21.85b	31.85b	20.85bs	30.85bs	.10bwH	.18bwH	.08b	......	......
Cincinnati	......	......	......	......	......	......	......	......	......	......	......	......
Cleveland	......	83.00d	5.60g	23.00A	......	23.00A	......	.1025AwF	......	......	.1025AG	.20AG
Dallas	e	40.00	e	25.40	44.24	.1066	.1894	28.55	50.08	.1030	.1066	.1894
Denver	......	50.00	......	......	......	......	......	......	......	......	......	......
Detroit	......	112.00	......	29.65	......	29.65v	......	.1285wI	......	.1026	......	.25
Kansas City	e	e	e	7.00d	......	18.60v	......	.085cwJ	......	.075c	0.125	......
Los Angeles	e	......	e	18.50dms	......	18.50dvs	......	20.00dz K	......	19.00dv	.09j	.19j
Minneapolis	......	......	3.33h	26.50	......	26.50	......	0.115w	......	0.105	.1242	......
Montreal	e	e	e	27.00n	39.60n	.135n	.198n	16.90nuE	20.90nuE	.132n	.197ns	.239ns
New Orleans	......	......	......	17.60v	......o	17.60vs	......o	.085vw	......o	.085B	.09BL	......
New York	......	......	3.70f	23.89qCD	44.56qD	23.89vtCD	44.56vtD	.1073wCDF	.1939wDF	......	.1073CD	.1939D
Philadelphia	175/185	110/120	4.06	22.00	......	22.00	......	.095uF	......	.095	......	......
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	.098	.11	.224
St. Louis	......	......	......	20.63O	......	.1764	......	.0925fwM	......	0.16	.105	......
San Francisco	......	70.00c	......	20.50g	37.50g	20.50gkv	37.50gkv	21.50gN	39.00gN	21.25vx	.0925y	.1825v
Seattle	......	......	......	24.50v	38.50h	18.75hv	......	26.00K	......	22.25hv	.0925h	.1025hr
Toronto	......	......	4.40	34.20	50.66	0.19	0.24	0.20w	0.25w	0.20	0.20	.24

‡ Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3" *h 2" tr, 8# *i 3 x 3⅝ x 8½. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/85 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland *z F.o.b. Edmonds *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to Manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L MS. *M MC 1-5, RC 1-5, .089. *N MC 3. *O fob Roxanna, Ill *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

LeTOURNEAU-WESTINGHOUSE

3 big capacity "C" Rear-Dumps handle tough rock haul

One of the toughest problems Wes-Julian Construction Corp., Dedham, Mass., encountered on improvement of Hanscom Air Force Base near historic Lexington was removal of a 100,000-yd. mound of solid granite known as Mew Hill. Located near the junction of the existing runway and the proposed extension, this hill posed a serious danger to jet planes using the strip. It also blocked construction of parking areas and prevented direct access to the field from machine and repair shops. Having successfully used Tournapulls on scraper dirt for several years, contractors turned to LeTourneau-Westinghouse equipment to solve this problem, too. Haulers chosen were 3 C Tournapull Rear-Dumps.

Solving a rock hill problem on $3,885,000 Air Base job

Rear-Dumps usually were loaded in 4 to 5 passes of 2½-yd. Northwest shovel. Each load averaged 18 tons. Because one "C" carried as much as could 3 to 4 average dump trucks, often used on jobs like this, Wes-Julian needed fewer haulers and fewer operators. All-steel body construction also reduced maintenance. Capacity of this Model "C" Rear-Dump, without sideboards, is 18 tons. Newest "C's" carry 22 tons.

Leaving the shovel, these Rear-Dumps accelerate quickly . . . go rapidly over both well-maintained haul road and soft fill. Runway is being extended 2300'. Pavement will be 200' wide with 200' shoulders on either side. Several 75' wide taxiways to be constructed include one 1000' long and another 1500' long. At the eastern end of the 150 acre air field job, Wes-Julian will also construct a 250' long blast pad.

Fill is dumped at end of runway extension. Note how body swings below and behind rear wheels. This keeps material from piling under unit . . . combined with front-wheel drive, allows safe dump over edge of fill or steep banks when necessary. When Mew Hill has been leveled, Rear-Dumps will haul another 100,000 yds. of rock, hardpan, peat, and clay from other borrow locations to grade for 6 miles of connecting highways.

Turning to dump in tight quarters of this ditch is no problem for C Tournapull Rear-Dump. Despite overall length of 29', "C's" can make non-stop 180° turn in space only 27' wide. In dump position, this remarkable unit requires only 21' for a non-stop U-turn. Steer works independently of footing through geared kingpin that connects trailing unit with prime-mover.

Tournapull—Trademark
Reg. U.S. Pat. Off. R-746 H-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS
A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. FELIX, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **N. H., Manchester**—NATIONAL GUARD FACILITIES—BA 9/13—U. S. Eng., 150 Causeway St., Boston 14, Mass., airfield pavements, roads, parking areas and utilities, Air National Guard, Grenier Air Force Base, ENG-19-016-57-41. $850,000-$950,000. Plans deposit $10. CD 8/21.

† **Vermont**—BA On Or About 9/20—U. S. Eng., 150 Causeway St., Boston 14, Mass., constr. Weston Local Protection, West River Flood Control, West River at Weston, CIVENG-19-016-57-24. Plans deposit $5.

BUILDINGS—BA

▲ **Mass., Wakefield**—OFFICE—BA 9/10—American Mutual Liability Insurance Co., 142 Berkeley St., Boston, (selected list of bidders) 2 story, 215x332 ft., garden-type HOME OFFICE BLDG., Route 128 and Lake Quannapowitt. $2,000,000. Chester Lindsay Churchill, 9 Newbury St., Boston, archt. Cleverdon, Varney & Pike, 120 Tremont St., Boston, struc. engrs. CD 1/5.

▲ **Conn., Stamford**—HIGH SCHOOL, etc.—BA About 9/19—Diocese of Bridgeport, Chancery Office, 395 Washington Ave., Bridgeport, Catholic high school and convent, Newfield Ave. between Case and Vine Rds. $2,250,000. J. Gerald Phelan, 211 State St., Bridgeport, archt. Fletcher-Thompson, Inc., 211 State St., Bridgeport, consult. engr. CD 2/24.

▲ **Conn., Winsted**—SCHOOL, etc.—BA 10/4—Regional School District No. 7, 384 Main St., general contract and electrical work for regional high school and agricultural school, Barkhamsted, Colebrook, Norfolk and New Hartford. $1,400,000. Plans deposit $75. Louis E. Jallade, 597 Fifth Ave., New York, N. Y., archt. Received no bids Aug. 23. CD 8/3.

BUILDINGS—SLC

Mass., Walpole—SHOP—Frank M. Hill Machine Co., 50 School St., soon lets contract machine shop, School St. Approx. $170,000., Raymond N. Stowell, Ned's Point Rd., Mattapoisett, archt.

HEAVY CONSTRUCTION—LB & CA

† **J. J. Dunn Co.**, 77 Meadowbrook Rd., Bangor, Me., CA **$149,330**, est. $150,000. repairing family housing, Dow Air Force Base, IFB-17-601-579, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 8/23.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,
Arthur Whitcomb Constr. Co., Inc., 725 Main St., Keene, N. H., CA **$635,351**, road mix 3.53 mi. hy. and four bridges, N. H. 11 and 103, Newport-Sunapee. Bids July 26. CD 8/1, under LB.

† **U. S. Eng.**, 150 Causeway St., Boston 14, Mass. rejected bids About Aug. 3, resurf. Rockingham Ave. Portsmouth Air Force Base, ENG-19-016-57-7, PORTSMOUTH, N. H. Will not re-advertise. CD 7/17.

C. Jiustino, Inc., 36 Upland Ave., Dorchester, Mass., LB **$189,830**. sewer replacement, Smith St., etc., Adams, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Aug. 21. CD 8/8.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
John H. Whitworth & Sons, Old Colony Rd., South Sudbury, Mass. LB **$289,790**. hy. work, Main St., Route 116, Plainfield and Savoy. Bids Aug. 21. CD 8/2.

▲† **Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn., LB **$1,168,728**. Air National Guard Taxiway, parking apron, Otis Air Force Base, ENG-19-016-56-20. FALMOUTH, MASS. U. S. Eng., 150 Causeway St., Boston, Mass. Bids Aug. 21. CD 8/13.

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I., CA **$115,557**, highway surf. Contrs. Nos. 56-6, 56-5. EAST PROVIDENCE, R. I. Town, Town Hall, Charles A. Maguire & Assoc., Turks Head Bldg., Providence, R. I. Bids July 24.

CONNECTICUT—State Hy. Dpt., State Office Bldg., Hartford,
American Constr. Co. Inc., 100 Airport Rd., Hartford, Conn., LB **$89,853** (6 bidders) Proj. 51-94, drainage shoulder 2,905 lin. ft. Rte. U.S. 6, Farmington. Bids Aug. 20. CD 8/16.

CONNECTICUT—State Hy. Dpt., State Office Bldg., Hartford,
Conn.—**Westcott Constr. Co., Inc.**, 52 N. Washington St., North Attleboro, Mass. LB **$188,771** (4 bidders) Proj. 115-62, bridge over N.Y., N.H. & H. R.R., b. conc. west approach to Quinnebaug River Bridge, Route 91, Putnam;
Conn.—**DeFonce Constr. Co.**, 110 Colonial Ave., Bridgeport, Conn., LB **$143,583** (3 bidders) Proj. 119-76, bridge over Shepaug River on Weller's Bridge Rd., and approaches, Roxbury. Bids Aug. 20. CD 8/16.

North Haven Constr. Co. Inc., Sackett Point Rd., North Haven, Conn., CA **$76,550**. water mains in various streets, WATERBURY, CONN. City, Bd. P. Wks., City Hall, Waterbury, Conn. Bids Aug. 14.

North Haven Constr. Co. Inc., Sackett Point Rd., North Haven, Conn., CA **$78,883**, est. $78,000. sewer, various streets, WATERBURY, CONN. Bd. P. Wks., City Hall, Waterbury, Conn. Bids Aug. 14.

Town of West Hartford, Town Hall, West Hartford, Conn. rejected bids Aug. 2, sanitary sewers, Mountain Rd., WEST HARTFORD, CONN. LB **$366,091**, Sections 1 and 2. CD 8/8, under LB.

BUILDINGS—LB & CA

Brown Constr. Co., 22 Monument Sq., Portland, Me., LB **$395,313**. mens REFORMATORY, SOUTH WINDHAM, ME. State of Maine, Institutional Serv. Dpt., State House, Augusta, Me. Maine Eng. Services Co., 34 Main St., Auburn, engrs. Stanley S. Merrill, 9 Vine St., Auburn, Me., archt.

Anthony DiLucci, 72 Pleasant St., Wellesley, Mass., CA **$110,000**. MFG. PLANT, Pond St., ASHLAND, MASS. Diamond Screw Mfg. Co., 439 Washington St., Holliston, Mass. CD 5/23.

M. S. Kelliher Co., 294 Washington St., Boston, Mass., LB **$894,396**. REHABILITATION CENTER, Harrison Ave. and Bennett St., BOSTON, MASS. Boston Dispensary, 25 Bennett St., Boston, Mass. Bids Aug. 21. CD 7/23.

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass., LB **$1,491,658**. mechanical off-street GARAGE, Harrison Ave. and Norfolk Pl., BOSTON, MASS. City Real Property Bd., City Hall Annex, Boston, Mass. Bids Aug. 23. CD 7/19.

Campanelli Homes, Inc., 186 Boden Lane, Natick, Mass., Owner Builds, **$360,000**. (2nd Sect.) RESIDENTIAL DEVELOPMENT, incl. 29 houses, Totem Pole Village, Indian Heights, BROCKTON, MASS.

Leland Constr. Co., Inc., 8 Camelia Pl., Lexington, Mass. Owner Builds, **$349,000**. RESIDENTIAL DEVELOPMENT, incl. 23 homes, Pine Hill Acres, Rte. 62, BURLINGTON, MASS.

Felix Buzzi & Son, 612 S. Main St., Torrington, Conn., CA **$345,000**. Item 120, Proj. BI-R-131, W. F. Kaynor Regional Technical SCHOOL addns., alterations, WATERBURY, CONN. State P. Wks. Dpt., 165 Capital Ave., Hartford, Conn. Bids July 18. CD 6/28.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **New Jersey**—BA 9/13—U. S. Eng., 111 E. 16 St., New York 3, N. Y., maintenance dredging Raritan River, removing and satisfactory disposal of all material except ledge rock lying above the plane of 25 ft. below mean low water in South Channel, CIVENG-30-075-57-20. CD 8/22.

▲† **New York**—BA On Or About 10/23—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, constr. Grass River Lock approach channel, St. Lawrence Seaway, St. Lawrence River, for the St. Lawrence Seaway Development Corp., CIVENG-30-023-56-71. Plans deposit $10. CD 6/25, under LB.

BUILDINGS—BA

▲ **Pa., Phila.**—STATE OFFICE—BA 9/12—General State Auth., 18 and Herr Sts., Harrisburg, heating, ventilating, air-conditioning at Phila. State Office Bldg., Broad and Spring Garden Sts. $1,000,000. Plans deposit $100. Collaborating Architects, 1621 Chestnut St., Harrisburg, archts. A. F. Jones, c/o owner, ch. engr. CD 8/23, under LB.

▲ **Pa., Pittsburgh**—HOSPITAL—BA 9/14—St. Francis General Hospital & Rehabilitation Institute, 45 St., 9 story, brick, block, steel hospital addn. $4,500,000. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., archts.

HEAVY CONSTRUCTION—LB & CA

Jesse A. Howland & Sons, Inc., Sea Bright, N. J., LB **$183,672**, 3 timber, stone jetties, Proj. 477, Stone Harbor, NEW JERSEY. State Dpt. Conservation & Economic Development, 1060 Broad St., Newark, N. J. CD 3/7.

PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,
PTC—**Rhoad Paving & Constr. Co.**, 306 W. Main St., Norristown, Pa., LB **$92,303**, surface treating shoulders with bit. material 56.6 mi. northeastern exten., Contr. 575;
PTC—**Dosch-King Co., Inc.**, Troy Hill Rd., Whippany, N. J. LB **$95,211** (4 bidders) surface treating shoulders with bit. material 51.7 mi. northeastern exten., Contr. 575A. Bids Aug. 21. CD 8/8.

Princemont Constr. Co., 11232 Triangle Lane, Silver Spring, Md., LB **$174,860** (2 bidders) Contract 91-D, storm drainage in connection with Anacostia River Flood Control & Navigation Proj., Cottage City and Colmar Manor, Bladensburg, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Aug. 20. CD 8/16.

DiSabatino Bros., Inc., 500 N. Hawley St., Wilmington, Del., LB **$80,000**. Contr. 56-4, surf. various streets, WILMINGTON, DEL. City, City Hall, Wilmington, Del.

† **Dist. P. Wks. Office**, Potomac Naval Command, Naval Gun Factory, Wash., D. C., cancelled bids to have been opened Aug. 15, facilities for 84 ft. diam. antenna, Naval Research Laboratory, NOy 92033, WASH., D. C. CD 8/9.

BUILDINGS—LB & CA

▲ **Durham Estates**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$2,300,000.** 197 HOUSES, Montauk Hy., east of Broadway, BAYPORT, N. Y.

▲ **Morgan Park Homes**, c/o Harry Klein Realty Co., 26 W. Jericho Turnpike, Huntington Station, N. Y. Owner Builds. **$3,000,000**. 200 HOUSES, Sunrise Hy. between Brook Ave. and Brentwood Rd., BAY SHORE, N. Y.

▲ **Tishman Realty & Constr. Co., Inc.**, 460 Park Ave., New York 22, N. Y. CA Est. **$4,950,000**, four 16 story APARTMENTS, 230 Jay St., 175 and 215 Adams St., BROOKLYN, N. Y. Traco Concord, Inc., 460 Park Ave., New York 22, N. Y. CD 8/8.

Harwood Homes, c/o Harry Klein Realty, 26 W. Jericho Turnpike, Huntington Station, N. Y. Owner Builds. **$500,000**, 40 HOUSES, Harwood Ave. north of Montauk Hy., EAST ISLIP, N. Y.

▲ **Mardan Assocs.**, c/o Daniel Metlitz Assocs., archts., 5 Beekman St., New York 7, N. Y. Owner Builds. **$2,000,000.** 5 story OFFICE and STORE, Merrick Rd., northwest corner, Long Beach Ave., FREEPORT, N. Y.

Kretzer Constr. Co., 16 E. 52 St., New York 22, N. Y. CA Est. **$275,000**. design and construct concrete, steel, masonry MFG. PLANT to mfr. aircraft actuators and control valves, GLEN HEAD, N. Y. Lundy Mfg. Corp., 36-08 33 St., Long Island City, N. Y.

▲ **Dodwood Hills Homes**, c/o Strathmore Agency, 665 E. Jericho Turnpike, Huntington Station, N. Y. Owner Builds. **$3,600,000**, 240 HOUSES, Pulaski Rd., HUNTINGTON, N. Y.

▲ **Rolling Greens at Manhasset**, c/o Kern Realty Co., 124-26 Queens Blvd., Kew Gardens, N. Y. Owner Builds. **$4,650,000**, 150 HOUSES on tract at I. U. Willetts Rd., near Shelter Rock Rd., NORTH HILLS, N. Y.

(Continued on page 126)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

Have you seen the brand-new C Tournapull with increased-capacity "Fullpak" scraper? It's lower, wider, better-than-ever! Loads faster, boils easier . . . heaps 18-yd. pay-loads for more profitable dirtmoving. Ask for details.

◀ Loading from ledge, Tournapull-Tournatractor team speeds dirtmoving operations on 90-acre housing project. Contractor E. R. Fenwick found one Tournatractor sufficient to push-load his 3 high-capacity "C's", and keep them busy moving wet, red shale.

Level 90,000 yds. of red shale for future 400-home subdivision

To cut and fill a hilly 90-acre site in preparation for the erection of 400 homes, Everett R. Fenwick of Matawan, N.J., employed 3 C Tournapulls to haul dirt . . . and a dozer-equipped Tournatractor to push-load the "C's" and handle clean-up.

This project, known as Roosevelt Park Housing Development, at Woodbridge, N.J., is being built by Sommer Brothers of Iselin, N.J. — who hired Fenwick for the 90,000-yd. cut-and-fill work. Material was red shale . . . heavy, difficult to load, and wet.

Average pay-load of high void shale picked up by Tournapulls was 10 cu. yds. On a round trip distance of 816′ cycle-time was 3 min. 5 sec., average. "Pulls" had to climb a 15% grade on return trip. Because of scattered areas of cut and fill, no haul-road, as such, was possible. "C's" had constantly rough hauls.

"Tops for big jobs"

"C Tournapulls are tops for big earthmoving work", Fenwick said. "I also have two D Tournapulls, which I use on smaller assignments. The combination of the two makes it possible for me to handle any type of earthmoving job with confidence."

"My Tournatractor has also proven itself to me by solid performance and utmost economy on many projects," he added.

Tournapulls can help you

You may have a job similar to those successfully handled by this New Jersey contractor. If so, you can benefit from Tournapull's rubber-tired mobility and easy to handle electric-control system. Let us show you owner-verified facts on Tournapull and Tournatractor performance. There's a size and type machine to do *your* job in less time, at bigger profit!

C Tournapull loads fast, packs big yardage in bowl. Dozer-equipped Tournatractor has power and speed to push-load "C" fast.

C Tournapull spreads load, then uses 90° power-steer to swing around in turn leaving fill. Maneuverable "C's" work handily in narrow spaces . . . ride smoothly.

Fullpak—Trademark, Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off. P-1004-B-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

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Nonskid—light—no rust

Alcoa® Abrasive Tread Plate is a tough aluminum alloy with skid-proof aluminum oxide rolled right into the surface. It's so nonskid you can walk right up a 30° incline—even when it's wet or oily!

This tread plate is ⅓ the weight of steel. It won't rust. It's easy to fabricate. It comes in many thicknesses and sizes.

Alcoa Abrasive Tread Plate is ideal for factory floors, ladder treads, engine room and pump room platforms, walkways, truck trailers, bus steps and aisles and many other uses. See your Alcoa distributor.

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DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

(Continued from page 124)

Meadow Hill Homes, c/o Strathmore Agency, 665 E. Jericho Turnpike, Huntington Station, N. Y. Owner Builds. **$450,000.** 30 HOUSES, Vernon Valley Rd., EAST NORTHPORT, N. Y.

▲ **Eli Besen,** c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J. Owner Builds. **$3,000,000.** 150 HOUSES, 25-acre tract, Orangeburg Rd. between Old Middletown and Sickletown Rds., PEARL RIVER, N. Y.

▲ **Zack C. Osias,** c/o Oscar Silverstone, archt., 666 Fifth Ave., New York 19, N. Y. Owner Builds. **$4,000,000.** 200 HOUSES, tract Mountaindale Rd. and Haviland Dr., YONKERS, N. Y.

Rockman Manor Homes, c/o Lester Cohen, archt., 41 Main St., Hackensack, N. J. Owner Builds, **$700,000.** 33 HOUSES on tract on Rockman and Piermont Rds., CLOSTER, N. J.

Delview Homes, 404 Delview Lane, Delanco, N. J., Separate Contracts, **$420,000.** RESIDENTIAL DEVELOPMENT, Larchmont Dr., DELANCO, N. J. Thomas Fisher, 1815 Federal St., Camden, N. J., engr.

▲ **Foxwood Homes, c/o Brownell & Kramer,** 1201 E. Grand St., Elizabeth, N. J. Owner Builds, **$3,500,000.** 240 HOUSES on 60-acre tract on Route 35, KEYPORT, N. J.

Maitland Homes, c/o C. J. Kordy, archt., 116 Passaic St., Passaic, N. J., Owner Builds, **$400,000.** 25 HOUSES on tract at Maitland and Chamberlain Aves., PATERSON, N. J.

S. T. Peterson & Co., Inc., U. S. Hy. No. 1, Mon. Jct., Princeton, N. J., CA **$150,000.** SHOP addn., TRENTON, N. J. John A. Roebling & Sons Corp., 640 S. Broad St., Trenton, N. J.

Navarro Corp., 6219 Broad St., Pittsburgh 6, Pa. CA Est. **$350,000.** DORMITORY, Morewood and Forbes Sts., PITTSBURGH PA. Carnegie Institute of Technology, Schenley Park, Pittsburgh, Pa. Bids July 31. CD 7/23.

Dock Constr. Co., 2532 Library Rd., Pittsburgh 27, Pa., CA Est. **$400,000.** 1 story glass, steel MEDICAL BLDG. at Pittsburgh Works, Carson St., PITTSBURGH, PA. Jones & Laughlin Steel Corp., Gateway Center, Pittsburgh 30, Pa.

▲ **Dan Ostrow Constr. Co.,** 13224 Georgia Ave., Silver Spring, Md. Owner Builds. **$5,000,000.** 500 HOMES, Bladensburg Rd.; **$500,000,** 50 brick, concrete block HOMES, Greenwood Knolls Development, SILVER SPRING, MD. CD 1/17.

MacLeod Constr. Co., 2500 Frederick Ave., Baltimore 23, Md., LB **$886,467** (7 bidders) masonry Featherbed Lane Elementary SCHOOL, near Baltimore, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. Bids Aug. 14. CD 7/31.

Kay Constr. Co., 4101 Kaywood Pl., Mt. Ranier, Md. Owner Builds, **$450,000-$500,000.** 40 HOMES, Monticello Ave. and Hillsboro Dr., WHEATON, MD.

Joseph B. Bahen Constr. Co. Inc., 418 Randolph St. N. W., Wash., D. C., CA **$741,900.** SYNAGOGUE, Western Ave. and 13 St. N. W., WASH., D. C. Beth Sholom Synagogue, 8 and Shepherd St. N. W., Wash., D. C. Bids May 23, awarded Aug. 22. CD 5/29, under LB.

▲ **M. Cladney Constr. Co., Inc.,** 635 "F" St. N.W., Wash., D. C., LB **$1,267,700;** Alternate No. 1 **$1,282,700;** OFFICE, SHOP, WAREHOUSE and PARKING GARAGE, 4 and Bryant Sts. N.E., WASH. D. C. Estate of Rebecca Lipscomb, c/o American Security & Trust Co., 15 and Pennsylvania Aves. N.W., Wash., D. C. Bids Aug. 23, CD 8/21;
Wm. Chappell Co., 1346 Good Hope Rd. S.E., Wash., D. C., LB **$1,274,000;** Alternate No. 1 **$1,281,000** (Wash., D. C.).

SOUTH

HEAVY CONSTRUCTION—BA

† **Fla., Miami**—FLOODLIGHTING—BA 9/18—P. Wks. Officer, Sixth Naval Dist., Bldg. 12, Charleston, S. C., floodlighting softball field and basketball courts, poles, transformers, underground duct, etc. Marine Corps Air Station, NBy 7812, Spec. 7812/56. Plans deposit $10.

† **Tenn., Chattanooga**—FLY ASH COLLECTOR SYS.—BA On Or About 9/19—U. S. Eng., 306 Federal Office Bldg., Nashville, fly ash collector sys., Volunteer Ordnance Works, ENG-40-058-57-2.

† **Miss., Meridian**—RUNWAY REPAIRS, etc.—BA On Or About 9/20—U. S. Eng., P. O. Box 1169, Mobile 7, Ala., N-S runway repairs and connecting taxiway, Key Field, ENG.-01-076-57-13.

† **N. C., Goldsboro**—HANGAR—BA 9/25—U. S. Eng., 308 Customhouse, Wilmington, alert hangar alterations, Seymour Johnson Air Force Base, ENG-31-075-57-7. Bids Aug. 14 rejected, LB **$74,966.** CD 7/18.

† **Fla., Jacksonville**—FLIGHT SIMULATOR TRAINING—BA On Or About 9/26—U. S. Eng., P. O. Box 4970, Jacksonville, flight simulator training bldg., Imeson Airport, Serial No. ENG.-08-123-57-15.

† **Ga., Macon**—WAREHOUSES, etc.—BA About 9/30—U. S. Eng., 200 East St. Julian St., Savannah, AMC warehouses, exterior drainage, Robins Air Force Base, Serial No. ENG-09-133-57-19. CD 8/21.

† **Louisiana**—BA 10/3—U. S. Eng., foot of Prytania St., New Orleans, overbank control structure, Old River Control, excav., backfill and filling approx. 588,000 cu. yd., Inv. 57-34, Concordia Parish.

La., Franklin—SCHOOLS—BA 9/13—St. Mary Parish School Bd., Franklin, Centerville High School Gymnasium and Colored Elementary School Centerville and Verdunville. Plans deposit $30 for gymnasium; $25 for school. Lloyd J. Guillory, 116 Chennault St., Morgan City, archt.

(Continued on page 128)

Pushed 120 feet by Tournatractor, C Tournapull loads about 10 pay yards of clay in 55 seconds. Operator says he finds that Tournapulls load better than other self-powered scrapers. Spreading this sticky, hard-to-eject clay over a distance of 100 feet takes an average of 1 minute.

How rubber-tired earthmovers beat tropical rains *on Brazilian Road*

The rainy season had just begun when Joao Gasparini, of Sao Paulo, began rebuilding a two-way, 2.7-mile highway connecting the Brazilian cities of Santo Andre and Sao Bernardo. This contract involved 110,000 cu. yds. of plastic red clay which is very sticky, hard to load, and hard to eject when wet.

To excavate as deep as 20 feet in this hard-to-handle material, and to build up comparably high fills, the contractor brought in a fleet of 3 C Tournapulls and a 208 hp rubber-tired Tournatractor.

120 cu. yds. hourly on 5620′ cycles

In addition to problems on cut and fill, haul road was wet, bumpy, and often crowded with traffic. Yet the Tournapulls overcame these obstacles to complete work on schedule.

Tournapulls averaged cycles of 5620 feet in 12.3 minutes. Each unit made 4 trips, to deliver 40 pay yards in 55 minutes. Working 10 hours a day, six days a week, the 3 C Tournapulls completed earthmoving in six weeks.

Main assignment for the Tournatractor was push-loading the three C Tournapulls. In this work, it replaced a crawler-tractor that was not powerful enough to load machines efficiently. With Tournatractor push-loading all 3 scrapers, each unit waited only about 13 seconds for assistance. When not handling this operation, Tournatractor cleared brush, rooted surface for faster scraper-loading.

Superintendent on the job is very satisfied with Tournatractor performance. He found that it took 60% less time to lubricate the Tournatractor than was needed to lubricate the crawler-tractor it replaced.

Fast completion of the project during the rainy season was credited to the high-speed maneuverability of the rubber-tired machines, and to their large four-wheel air brakes which gave better control and safety in rough going. These Tournapull advantages gave operators confidence to work at speeds to 30 mph.

Fast travel, job-to-job

Since the big rubber tires will not damage dirt roads, pavement, rail tracks, or curbs, machines move easily from job-to-job through city traffic and over highways.

Before coming to Santo Andre, the three Tournapulls moved 65,300 cubic yards to build a road at Juquitiba, and 19,600 cubic yards on a "road-rectifying" job in Jagure.

When you have earth to move, fast, and under tough conditions, consult your LeTourneau-Westinghouse Distributor about the money-saving advantages of modern Tournapulls. He will give you facts and specifications.

Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off. PT-933-H-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957

(Continued from page 126)

Fla., Key West—SCHOOL—BA 9/24—Monroe County Bd. P. Instruction, Administration Bldg., Marathon High School, Marathon. William H. Merriam, archt., and Shinn & Hutcheson, engrs., both at 401 Coral Way, Coral Gables, Fla. CD 5/2.

Fla., Key West—SCHOOL, etc.—BA 9/24—Monroe Co., Bd. P. Instruction, Administration Bldg., Key West, Harris Elementary School addns., alterations; Douglass High School addn. Plans deposit $150. William H. Merriam, archt., and Shinn & Hutcheson, engrs., both at 401 Coral Ways, Coral Gables, Fla.

Ala., Birmingham—AUDITORIUM—BA 9/25—City, City Hall, enlarging, air-conditioning municipal auditorium, base contract and 11 alternates, $600,000. Charles McCauley, Jackson Bldg., Birmingham, archt. CD 9/20/55.

† **N. C., Charlotte**—INDUCTION STATION—BA 10/4—U. S. Eng., 308 Customhouse, Wilmington, 20,000 sq. ft. steel frame, masonry Armed Forces Examining and Induction Station, ENG-31-075-57-9. Plans deposit $5.60. CD 8/21.

BUILDINGS—SLC

La., Lafayette—OFFICE—Murphy & Perkins, archts., 911 Gen Mouton Ave., soon let contract, 2 story, 5,400 sq. ft. rein.-conc. office bldg., U. S. Hwy. 90, for Lafayette Investment Co., Wm. J. Ashby, pres.

▲ **W. Va., St. Albans**—OFFICE, etc.—New York Life Insurance Co., United Fuel Gas Co., Lessee, 1033 Quarrier St., Charleston, soon lets contract office and facilities, spur railroad on Route 17 at Lock 7, $2,000,000. C. E. Silling & Assocs., 314 Masonic Temple Bldg., Charleston, archts. CD 7/16.

HEAVY CONSTRUCTION—LB & CA

Lambert Constr. Co., 1071 Retreat St., Greensboro, N. C. CA **$561,863**. water and sewer imprvs., GREENSBORO, N. C. City, City Hall, Greensboro, N. C. Bids July 31. CD 8/13, under LB.

City, Morganton, N. C., rejected bids July 18, 2 m.g.d. water plant, MORGANTON, N. C. LB **$486,429**. CD 7/27, under LB.

Crosby Constr. Co., Inc., Union, S. C. LB **$61,339**. WW imprvs., MOUNT PLEASANT, N. C. Town, H. A. Moose, mayor, Mount Pleasant, N. C. John W. Dandridge, 212½ N. Independence Blvd., Charlotte, N. C., engr. Bids Aug. 9.

SOUTH CAROLINA—State Hy. Dpt., Columbia,
rejected bids Aug. 7, road work, S. C. Dockets 17.311 and 17.312, Dillon Co.; road work, S. C. Docket No. 10.436. F. A. Proj. No. F-2535 (3), Charleston Co. LB $535,268. CD 8/14, under LB.

▲ **SOUTH CAROLINA**—State Hy. Dpt., Columbia,
Sloan Constr. Co., Inc., P.O. Box 747, Greenville, S. C. CA **$1,336,999**. stabil. aggregate base course, b. conc. surf. 11.329 mi. relocation US Rte. 276, Dockets Nos. 23.395 and 30.338, F. A. Proj. F-FG-303 (4), Greenville and Laurens Counties. Bids Aug. 7. CD 8/14, under LB.

▲ **FLORIDA**—State Road Dpt., Tallahassee,
H. E. Wolfe Constr. Co., Box 1361, St. Augustine, Fla. CA, **$1,021,357**. extra heavy excav., limestone base, b. conc. surf. course, concrete box culverts, 363 ft. bridge 6.942 mi. SR 5, Job 7093-175, Volusia Co. Bids Aug. 9, awarded Aug. 20. CD 8/17, under LB.

Sydnor Pump & Well Co., Inc., 1305 Brook Rd., Richmond, Va. **$521,960**. 10 water supply wells, furnishing, installing 10 deep well pumps, ORLANDO, FLA. Orlando Utilities Comn., 102 Wall St., Orlando, Fla. Bids Aug. 7. CD 7/19.

† **Coastal Contractors, Inc.**, Box 911, Baton Route, La. LB **$104,923**. (3 bidders) Keystone Dam alterations on Bayou Teche, St. Martin Parish, Inv. 57-14, LOUISIANA. U. S. Eng., foot of Pryania St., New Orleans, La. Bids Aug. 17. CD 8/3.

J. A. Harper, Crowville, La. LB **$286,669**. Kepler Creek spillway, LOUISIANA. Dpt. P. Wks., Baton Rouge, La. Bids Aug. 13. CD 8/31;
E. A. Caldwell, Reymond Bldg., Baton Rouge, La. LB **$83,883**. Kepler Creek dam (Louisiana).

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,
W. C. Snider, Danville, Ky. and **Greer Bros. & Young**, London, Ky., CA **$1,421,373**, b. conc. surf., Class I, 8.048 mi. Stanford-Somerset (US 27) Rd. F 502 (5), SP 69-90, Lincoln Co. Bids Aug. 10. CD 8/21, under LB.

W. L. Hailey, Inc., 314 N. 42 Ave. N., Nashville, Tenn. LB **$997,000**. Ohio River Interceptor, Sect. A., Contr. 226, 1,650 lin. ft. 11 in. semi-elliptical rein.-con. sewer; 425 lin. ft. 48 in. sewer; 40x60 ft. underground sewage diversion structure, LOUISVILLE, KY. Metropolitan Sewer Dist., 412 W. Market St., Louisville, Ky. Bids Aug. 21. CD 7/24.

▲ **Ryan Constr. Co.**, 800 E. Michigan Ave., Evansville, Ind. LB **$754,608**. (6 bidders) Contr. A, sewage treatment plant, primary sedimentation tube, separate sludge digestion nominal plant, 7,500,000 g.p.d. capacity. LB **$626,679**. (4 bidders). Contr. C, sewer lines for Contrs. A and B, OWENSBORO, KY. City, Owensboro, Ky. Bids Aug. 21. CD 7/16;

▲ **Clark Constr. Co.**, 1919 Parrish Ave., Owensboro, Ky. LB **$1,009,067**. (4 bidders) Contr. B, 3 sewage pumping stations, 1,800, 2,400 and 9,000 g.p.m. (Ownesboro, Ky.).

BUILDINGS—LB & CA

▲ **Banks & Lee**, Tower Bldg., Wash. D. C. Owner Builds, **$12,000,000**. 800 HOMES, Hybla Valley, FAIRFAX, VA. Walton & Madden, 3510 Rhode Island Ave., Mt. Rainier, Md., archts.

C. C. Woods Constr. Co. Inc., 217 W. Geer St., Durham, N. C., LB **$429,800**. ACKLAND BUILDING, CHAPEL HILL, N. C. University of North Carolina, Chapel Hill, N. C. Bids Aug. 14. CD 8/6.

McDevitt & Street Co., P. O. Box 1847, Charlotte, N. C., CA **$329,577**, general constr. 1 SCHOOL of 4 schools alterations, addns., CHARLOTTE, N. C. Mecklenburg Co. Bd. Educ., Court House, Charlotte, N. C. Bids Aug. 7. CD 8/15, under LB;
J. V. Barger, Mooresville, N. C., CA **$337,021**, general constr. 3 schools (Charlotte, N. C.)

Wrenn-Wilson Constr. Co., Trust Bldg., Durham, N. C. LB **$469,700**. Kimberly HIGH SCHOOL, WINSTON SALEM, N. C. City Bd. School Comrs., Winston Salem, N. C. Bids Aug. 9. CD 7/30.

▲ **Leifert Constr. Co.**, 147 N.W. 79 St., Miami, Fla., CA, **$1,125,000**. 140 RESIDENCES, COCOA, FLA. Cocoa Modern Manors, c/o contractor. Gilbert M. Fein, 1370 Washington St., Miami Beach, Fla., archt.

Dyson & Co., 806 W. Romano St., Pensacola, Fla., LB **$579,070**. ADMINISTRATION and SCIENCE BLDGS., Pensacola College, PENSACOLA, FLA. Bd. P. Instruction, Escambia Co., Pensacola, Fla. Bids Aug. 7.

▲ **U. S. Eng.**, 2301 Grant St., Mobile 7, Ala., cancelled bids to have been opened Aug. 7, construct and finance 100 Capehart Housing units, FORT McCLELLAN, ALA. Est. **$1,350,000**. CD 7/25.

U. S. Eng., 2301 Grant St., Mobile 7, Ala., cancelled bids to have been opened on or about Aug. 21, Phase II 480-units of Capehart family HOUSING, FORT RUCKER, ALA. CD 7/25.

▲ **Foster & Creighton**, American National Bank Bldg., Nashville, Tenn., CA, Total est. **$25,000,000**. aluminum casting PLANT, LISTERHILL, ALA. Ford Motor Co., The American Rd., Dearborn, Mich. Bids Aug. 1. CD 6/21.

Rannie Terral, Box 545, Farmersville, La., LB **$415,329** (3 bidders) Westside HIGH SCHOOL, FARMERVILLE, LA. Union Parish School Bd., Farmerville, La. Frey, Huddleston & Assn., 1010 Creswell St., Shreveport, Fla., archts.

R. J. Jones & Sons, 130 Wheelock Ave., Alexandria, La., LB **$366,722** (8 bidders) Proj. E 8-NW-4, BIOLOGICAL SCIENCE BLDG. for Northwestern State College, NATCHITOCHES, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Aug. 14. CD 7/24.

Gervais F. Favrot Co., 330 Balter Bldg., New Orleans, La. LB **$364,976**. board's ADMINISTRATION BLDG. addns., alterations, NEW ORLEANS, LA. Port of New Orleans, Canal St., New Orleans, La. Bids Aug. 16. CD 8/6.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

Ind., Indianapolis—BA 9/13—Bd. Aviation Comrs., at office Airport Supt., New Terminal Bldg., Weir Cook Municipal Airport, re-erection and mechanical installations hangar with new office and cargo bldg., Weir Cook Municipal Airport. Plans deposit $20. Edw. D. James & Assocs., Inc., 122 E. Michigan St., archt. CD 6/7.

† **Wis., Two Creeks**—BA 9/14—Procurement Office, Building 600, Truax Field, Madison, Zone 7, repairing roads and walks at 700th AC & W Station, I.F.B. 47-602-57-8. CD 6/26, under LB.

† **Wis., Antigo**—BA 9/17—Procurement Office, Bldg. 600, Truax Field, Madison, Zone 7, repairing bit. roads and walks, 676th AC & W Station, I.F.B. 47-602-57-9.

BUILDINGS—BA

▲ **Ind., Hobart**—HIGH SCHOOL—BA 9/17—Hobart School Bldg. Corp., 113 Cleveland, high school and gym, 8th and Fleming Sts. $1,219,000. Schutt, Halley & Assoc., 510 Jefferson, Gary, archts., CD 12/21.

▲ **Wis., Shawano**—COURT HOUSE—BA 9/19—Shawano Co., 2 story, bsmnt., stone, concrete court house. $1,260,000. Plans deposit $50 for general, $25 for mechanical. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, archts. CD 7/7/55.

▲ **Ind., Columbia City**—SCHOOL—BA 9/26—Columbia City Joint High School Bldg. Corp., Columbia City, Columbia City Joint High School. Over $1,000,000. Emerson Scholer, 2566 N. Campbell Ave., P. O. 5157, Tucson, Ariz., archt. CD 5/24, under LB.

BUILDINGS—SLC

▲ **Ill., Dolton**—PLANT—Container Corp. of America, 38 S. Dearborn St., Chicago, Zone 3, soon lets contract 1 story box mfg. plant, 144 and Indiana Ave. $3,500,000. Morton L. Pereira & Assoc., 316 N. Michigan Ave., Chicago, archts., CD 7/13.

BUILDINGS—LB & CA

Jechura Bros., Inc., 5700 Telegraph Rd., Toledo, O. CA **$136,155**, Contr. 92-B, installing north side trunk main, approx. 6,500 lin. ft. 48 in. concrete pressure pipe along Matzinger Rd. from Stickney Ave. to Laskey Rd., TOLEDO, O. City, Comr. Purchases, Safety Bldg., Toledo, O. Bids Aug. 7;
Price Bros. Co., P.O. Box 825, Dayton 1, O., CA **$186,699**, Contr. 92-A, material only (Toledo, O.)

▲ **National Eng. & Contg. Co.**, 1968 W. 3 St., Cleveland 13, O. CA **$1,010,064**, est. $933,000, Contr. A, sewage plant only, Willoughby-Eastlake Sewage Disposal Sys., WILLOUGHBY, O. City, City Hall, Willoughby, O. Bids July 30, awarded Aug. 20. CD 8/8, under LB.

▲ **ILLINOIS**—State Div. Hys., Springfield,
Ill.—**Bethlehem Steel Co.**, E. 3 St., Bethlehem, Pa., LB **$159,200** (3 bidders) steel for 4-span bridge, Calumet Expressway over C. R. I. & P. R.R., Cook Co.;
Ill.—**Eric Bolander Co.**, Winchester Rd., Libertyville, Ill., LB **$167,183** (2 bidders) 3-span grade separation Rte. 42A over southbound US 41 west of Waukegan, Lake Co.;
Ill.—**Culberson Constr. Co.**, Pana, Ill., LB **$159,021** (2 bidders) grade separation Rte. 39 over U.S. 45 north of Urbana, Champaign Co.; LB **$99,188** (3 bidders) Lincoln Ave. grade separation over Rte. 39, Champaign Co.; LB **$125,862** (3 bidders) 4-span grade separation, Neil St. in Champaign, Rte. 39, Champaign Co.;
Ill.—**Fruin-Colnon Constr. Co.**, 1706 Olive St., St. Louis, Mo., LB **$614,000** (8 bidders) concrete paving approaches Mo. Pac. R.R. FA Rte. 4, Dupo, St. Clair Co.;
Ill.—**General Paving Co.**, 30 E. John St., Champaign, Ill., LB **$90,197** (3 bidders) separation over Market St. Rte. 39, Champaign, Champaign Co.;
Ill.—**Ladd Constr. Co.**, Ladd, Ill., LB **$165,664** (7 bidders) 2-span steel bridge; grav. course 6.29 mi. east of Mendota, La Salle Co.;
Ill.—**McCann & Co., Inc.**, 2145 Divereaux St., Springfield, Ill., LB **$607,564** (6 bidders) two 8-span steel girder bridges over I. C. R.R. Rte. 14, near Belleville, St. Clair Co.;
Ill.—**M. J. McDermott Co.**, 30 N. La Salle St., Chicago, Ill., LB **$353,476** (1 bidder) 3-span girder bridge, I. C. R.R. over Ogden Ave., Cook Co.;
Ill.—**State Improvement Co.**, 1 N. La Salle St., Chicago, Ill., LB **$130,698** (5 bidders) 3-span steel bridge over Des Plaines River, Washington Blvd., Cook Co.;
Ill.—**A. J. Walker Constr. Co.**, 421 S. 21 St., Mattoon, Ill., LB **$144,234**. wid'n. bridge over Embarrass River, and slab over Town branch near Charleston, Coles Co.;
Ill.—**Burnell G. Watson**, P.O. Box 303, Chatsworth, Ill., LB **$269,614** (1 bidder) repairing bridges, U.S. 24 near Piper City, Livingston, Ford and Iroquois Counties. Bids Aug. 21. CD 8/10.

▲ **ILLINOIS**—State Div. Hys., Springfield,
Ill.—**Contracting & Material Co.**, 1235 Dodge Ave., Evanston, Ill., LB **$122,301** (3 bidders) resurf. 1.96 mi. North Ave., Ill. 64; Cook Co.; LB **$682,986** (7 bidders) concrete base surf. 1.91 mi. Ill. Rte. 64, Cook Co.;
Ill.—**McDougal-Hartmann Co.**, 1500 N. Adams St., Peoria, Ill., LB **$108,686** (2 bidders) patching Ill. 121 and U.S. 136, Logan, Macon, Mason and Tazewell Counties; LB **$361,238** (1 bidder) earth grading, retaining walls, Illinois River approach, Peoria Co.;
Ill.—**Standard Paving Co.**, 308 W. Washington St., Chicago, Ill., LB **$73,056** (5 bidders) resurf. 0.4 mi. SA Rte. 153, Washington Blvd., Cook Co.; LB **$147,571** (5 bidders) resurf. 0.8 mi. Ogden Ave. to Ashland St. in Chicago, Cook Co.;
Ill.—**Azzarelli Constr. Co.**, R.R. 1, Kankakee, Ill., LB **$75,784** (2 bidders) bit. surf. 4.26 mi. from US 54 north of Bradley E., Kankakee Co.;
Ill.—**Bituminous Fuel & Oil Co.**, 304 Illinois Ave., East St. Louis, Ill., LB **$298,851** (4 bidders) 8.22 mi. from Roadhouse to U.S. Rte. 67, Greene Co.;
Ill.—**Black Top Roads Co.**, Melrose Park, Ill., LB **$127,551** (3 bidders) conc. resurf. 4.95 mi. Rohlwing Rd., Cook Co.;
Ill.—**Burch Constr. Co.**, Washington Bldg., Madison, Wis., LB **$225,239** (7 bidders) earth grading 6.96 mi. between Ill. 104 and Griggsville, Pike Co.;
Ill.—**Collins Bruley Constr. Co.**, P.O. Box 228, Decatur, Ill., LB **$74,364** (2 bidders) bit. surf. course 2.96 mi. from Ill. 48 N.E. of Decatur, Macon Co.;
Ill.—**R. A. Cullinan & Sons**, Tremont, Ill., LB **$134,354** (1 bidder) wid'n. U. S. 150 and Ill. 121 in Morton, Tazewell Co.;
Ill.—**Chas. E. Giertz Son**, 57 Douglas Ave., Elgin, Ill., LB **$83,381** resurf. U. S. Alt. 30 from Kishwaunkee Bridge, DeKalb Co.;
Ill.—**S. J. Groves & Sons Co.**, 1104 W. Reynolds St., Springfield, Ill., LB **$703,211** (3 bidders) bit. resurf. 2.79 mi. from bridge over Kankakee River, Kankakee Co.;
Ill.—**J. P. Constr. Co.**, 1750 State St., Chicago Heights, Ill., LB **$86,810** (3 bidders) wid'n. 5.52 mi. between Ill. 72 and U. S. 20 Cook and Du Page Counties;
Ill.—**L & S Constr. Co.**, 4614 W. 5 Ave., Chicago, Ill., LB **$129,582** (3 bidders) traffic signals Cook Co.;
Ill.—**D. M. Lake Constr. Co.**, 123 N. Morgan St., Shelbyville, Ill., LB **$233,493** (9 bidders) grading 13.48 mi. F. A. Rt. 160, Effingham and Clay Counties;
Ill.—**Mitchell Constr. Co.**, 216 E. Madison St., Herrin, Ill. LB **$488,379** (4 bidders) grav. and 4 I-beam bridges 4.28 mi. Herrin to Johnston City, Williamson Co.;
Ill.—**Monmouth Stone Co.**, 521 S. 3 St., Monmouth, Ill., LB **$81,711** (2 bidders) resurf 2.95 mi. on FAS Rt. 405, Alexis, Warren Co.;
Ill.—**Sangamo Constr. Co.**, 700 N. MacArthur St., Springfield, Ill., LB **$238,009** (3 bidders) grav. 2.47 mi. FAS 616 and 3-span bridge Scottville, Morgan Co.;
Ill.—**Leon B. Stilley**, P. O. Box 192, Marion, Ill., LB **$487,567** (6 bidders) surf. 7.12 mi. from Rte. 13 west of Marion, Williamson Co.;
Ill.—**Strunk Bros.**, Tiskilwa, Ill., LB **$81,746** (3 bidders) bit. surf. 2.52 mi. NW of Sparland, FAS Rt. 249, Marshall Co.;
Ill.—**Swords & Dietz**, 107 S. Jefferson St., Peoria, Ill., LB **$83,490** (3 bidders) grav. surf. 3.03 mi. Henderson North and 3-span slab bridge, FAS 1217, Mercer Co.;
Ill.—**Thompson Asphalt Co.**, 6 and McCambridge St., Madison, Ill., LB **$130,739** (3 bidders) patching

(Continued on page 130)

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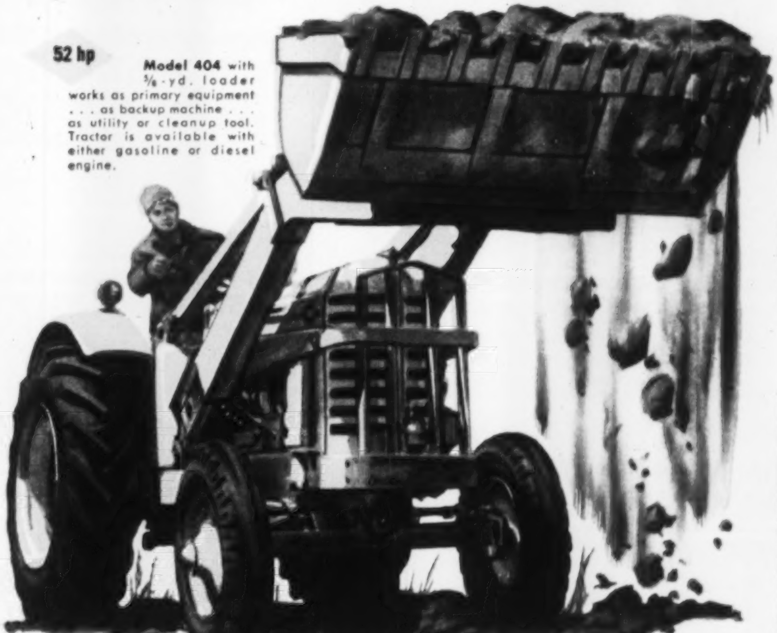

52 hp **Model 404** with $\frac{5}{8}$-yd. loader works as primary equipment . . . as backup machine . . . as utility or cleanup tool. Tractor is available with either gasoline or diesel engine.

M-H-F

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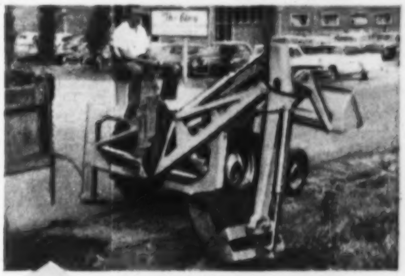

34 hp **Model 202** and backhoe — 5 sizes, 12" to 36" buckets. Swings 180°. Ideal for scattered "work and run" jobs — anywhere. Digs to depth of 13 ft.

42 hp **Davis Pit Bull** features torque converter . . . "foot-shift" direction changes . . . five speeds forward, five reverse. Frequently outworks more expensive, single-purpose rigs.

Fork Lift **Model 202** lifts 4000 lbs. with 10 ft. mast, has extension with 21 ft. reach for lighter loads.

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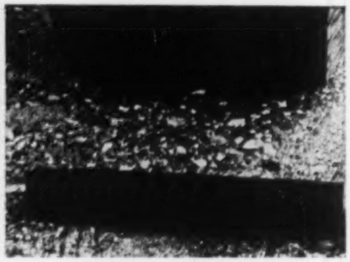
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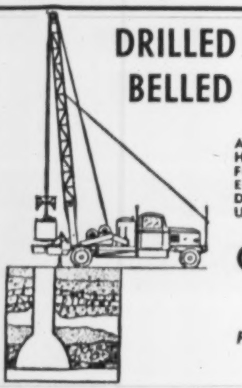

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Write for Specifications

(Continued from page 128)

and resurf Rtes. 108 and 111 and U. S. 67, Greene and Macoupkin Counties;

Ill.—**Earl Walker, Inc.**, Sullivan, Ill., LB **$398,728** (3 bidders) bit. resurf. 4.87 mi., wid'n. 4.19 mi. between U. S. 51 and Cache Alexander Co.;

Ill.—**White Constr. Co.**, 1735 W. Fullerton St., Chicago, Ill., LB **$156,296** (6 bidders) resurf. 2.83 mi. Cermak Rd., Ill. 55, Springfield Ave. to Ashland in Chicago, Cook Co.;

Ill.—**Wood-Mar Constr. Co.**, Tremont, Ill., LB **$83,700** (2 bidders) grav. 2.4 mi., 3 span slab bridge south of Secor, Woodford Co. Bids Aug. 21. CD 8/10.

▲ **ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Zone 6,

Public Constructors, Inc., 431 Market St., Camden, N. J., LB **$3,026,100**. (18 bidders) Contract N-2A, grading, drainage, paving, appurtenances, precast concrete bridges, for approx. 4.775 mi. North Illinois Toll Hy., Harlem Twp., Winnebago Co. Bids Aug. 23. CD 7/30.

Galvin Constr. Co., Sandwich, Ill., LB **$106,333**. NW Lateral sewer addn., AURORA, ILL. Aurora Sanitary Dist., 30 Island Ave., Aurora, Ill. Bids Aug. 10. CD 7/30.

Rockford Blacktop Constr. Co., 1615 Westchester St., Rockford, Ill., CA, **$180,085**. bit. paving, concrete sidewalks, curb, gutters, storm sewers, ROCHELLE, ILL. City, City Hall, Rochelle, Ill. C. K. Willett, 317 N. Galena Ave., Dixon, Ill., engr.

Illiana Constr. Co., Inc., 1207 E. University St., Urbana, Ill., LB **$120,957**. Intercepting sewers, URBANA, ILL. University of Illinois, Urbana, Ill. Bids July 31. CD 7/19.

MICHIGAN—State Hy. Comn., Stevens T. Mason Bldg., Lansing,

Detroit Concrete Products Corp., 19209 W. Davison St., Detroit, Mich., LB **$277,011** (5 bidders) b. conc. 4.807 mi. U. S. 10, and b. conc. 0.282 mi. U. S. LO, U 82131 C2-U (52-35) (U 258-20) Part 1, M 82131 C3-U (82-35), Wayne Co. Bids Aug. 8. CD 7/27.

Greenfield Constr. Co., 15601 W. McNichols Rd., Detroit 35, Mich., CA **$498,000**, water main, appurtenances etc. Kendall Ave. from Whitcomb Ave. to Southfield Rd. DETROIT, MICH. City, Bd. Water Comrs., 735 Randolph St., Detroit, Mich. Bids Aug. 1. CD 7/11.

Brown Brothers, 3245 W. St. Joseph St., Lansing, Mich., LB **$215,435**. storm trunk drain from Boston St. to Conlon Ave., EAST GRAND RAPIDS, MICH. City, Louis F. Battle, clk., East Grand Rapids, Mich.

▲ **Reniger Constr. Co.**, 127 Cedar St. N., Lansing, Mich., CA **$1,363,679**. Macklin Field, constr. upper deck of stadium, Michigan State University, EAST LANSING, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. CD 8/21, under LB.

A & A Asphalt Paving Co., 1045 Haynes St., Birmingham, Mich., CA **$150,000**. asph. paving various streets, ECORSE, MICH. City, 4373 High St., Ecorse, Mich., Mason L. Brown & Sons, 120 Madison St., Detroit, Mich., engrs.

Charles Board, 2979 Whitney St., Detroit, Mich., CA **$206,788**. swimming pool at Pierce Junior High School, GROSSE POINTE, MICH. Bd. Educ., Grosse Pointe P. Schools, 389 St. Clair Ave., Grosse Pointe, Mich. Bids Aug. 6, awarded 8/29.

Bairley & Lindley, Inc., 4000 W. Jefferson St., Trenton, Mich., CA **$257,558**, 2 mi. c. conc. 12 Mile Rd. from Van Dyke to Schienherr Rd. Warren, MOUNT CLEMENS, MICH. Bd. Road Comrs., Macomb Co., County Bldg., Mount Clements, Mich. Bids Aug. 3. CD 7/27.

BUILDINGS—LB & CA

The M. DeBartolo Constr. Co., 2620 Market St., Youngstown, O. CA Est. **$500,000**. 60,000 sq. ft. WAREHOUSE addn., 280 N. Meridian Rd., YOUNGSTOWN, O. Century Food Markets Co., 280 N. Meridian Rd., Youngstown, O. Awarded Aug. 11. CD 4/4.

A. J. Galser Co. Inc., 401 S. Lincoln St., Muncie, Ind., CA **$356,700**. general contract 2 story 69x137 sq. ft. masonry, steel, rein.-conc. LIBRARY, ANDERSON, IND. Anderson College & Theological Seminary, Anderson, Ind. Bids July 27. CD 7/13.

▲ **M. J. McGough Co.**, 1954 University Ave., St. Paul 1, Minn., CA **$2,180,000**. general contract DORMITORY and DINING HALL, SOUTH BEND, IND. University of Notre Dame, c/o Rev. Edmund P. Joyce CSC exec. vice-pres., Notre Dame, Ind. Bids Aug. 7. CD 8/22, under LB;

Morrison Constr. Co., 1834 Summer St., Hammond, Ind., CA **$692,000**. mechanical work for dormitory and dining hall (South Bend, Ind.).

▲ **General Electric Co.**, River Rd., Schenectady, N. Y., CA Total Est. **$58,000,000**. turbine for 450,000 kw. GENERATING PLANT on Wabash River near TERRE HAUTE, IND. Indiana & Michigan Electric Co., 2101 Spy Run Ave., Fort Wayne, Ind.;

Babcock & Wilcox, 161 E. 42 St., New York, N. Y., CA, boiler (Terre Haute, Ind.).

Carl W. Linder & Co., 614 Prairie St., Aurora, Ill., CA **$344,000**. 1 story OFFICE, AURORA, ILL. Equipto Co., 675 Prairie St., Aurora, Ill. Bids Aug. 8. CD 8/13.

Klarich Constr. Co., 9009 S. Western Ave., Chicago, Ill., CA **$157,000**. 1½ story, bsmnt. FACTORY and OFFICE, 5153-61 S. Millard Ave., CHICAGO, ILL. Abronson & Bratton, c/o contractor. Ralph E. Urnst, 9009 S. Western Ave., Chicago, Ill., archt.

▲ **D'Arcy Leck Constr. Co.**, 2839 Stevens Ave., Minneapolis, Minn., CA **$1,074,880**. general contract HOSPITAL, APPLETON, WIS. Appleton Memorial Hospital Assn., 106 W. Washington St., Appleton, Wis. Bids Aug. 14. CD 8/21, under LB;

R. Wenzel Co., 218 N. Division St., Appleton, Wis., CA, **$413,143**, heating, and plumbing work (Appleton, Wis.).

(Continued on page 133)

Six Clyde Whirleys to Serve World's Largest Graving Dock at N. Y. Ship.

In New York Shipbuilding Corporation's new, record size dry dock, the fifth huge aircraft carrier of the Forrestal Class will be built.

THE GRAVING DOCK measures 1100 feet long by 150 feet wide by 47 feet deep and will be capable of serving the largest vessels now built or planned. The dock will contain 54 million gallons of water which can be discharged at the rate of 120,000 gallons per minute.

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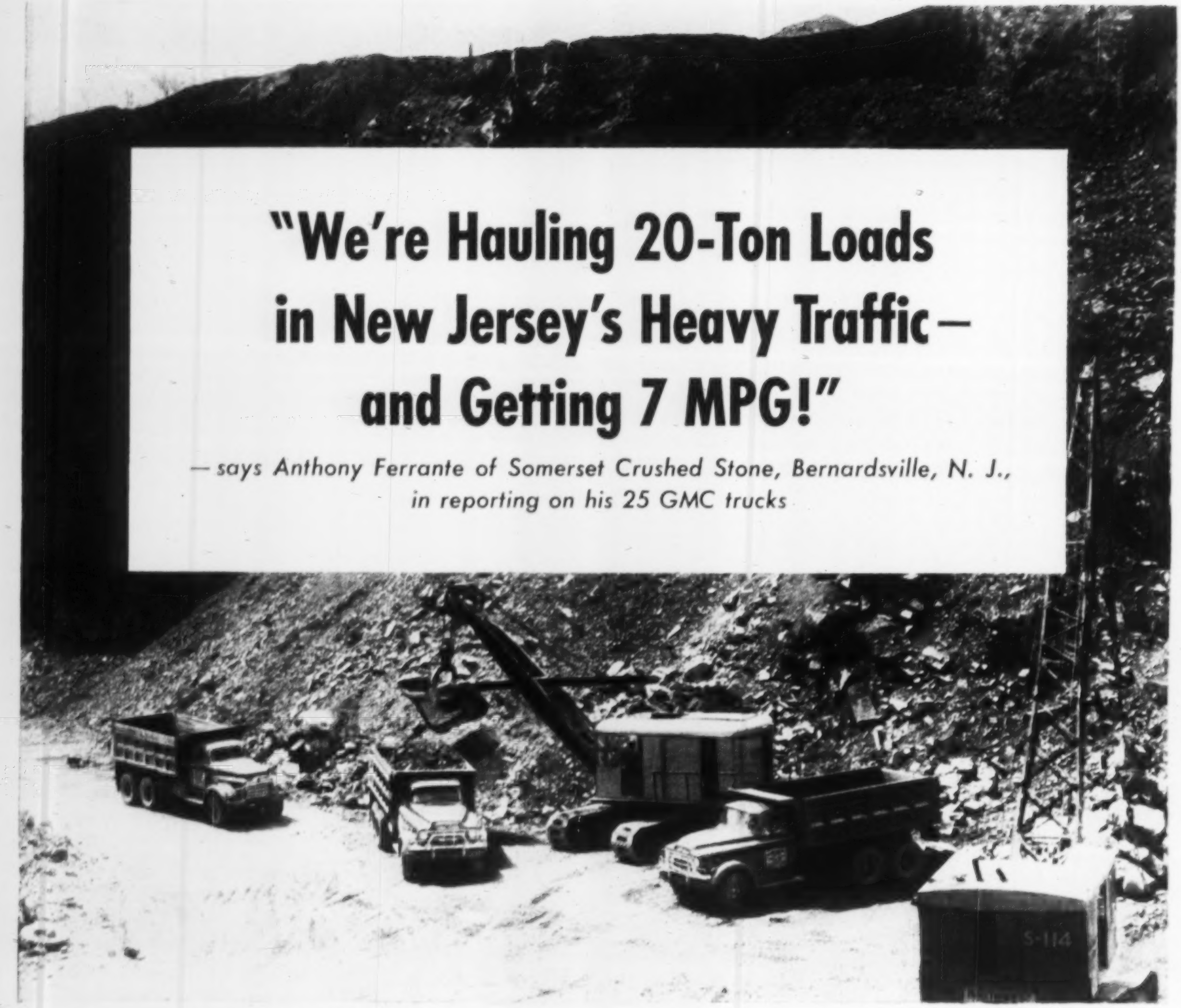

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"THOSE GMC's ARE NO. 1 IN OUR FLEET," says Somerset owner, Anthony Ferrante. His reason: Simply that the GMC's cost less tc operate—so they make more money. Result: They have 6 more new GMC W635 tandems on order as this is written!

GMC TRUCK & COACH

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(Continued from page 130)

Owen Ames & Kimball Co., 38 Pearl St. N.W., Grand Rapids, Mich., CA **$669,900**. general contract, COUNTY JAIL, GRAND RAPIDS, MICH. Bd. Supervs., Kent Co. County Bldg., Grand Rapids, Mich. Yamasaki, Leinweber & Assocs., 103 W. 5 St., Royal Oak, Mich., archts.-engrs.

Aalsburg Builders, 1447 Cornell Dr. S. E., Grand Rapids, Mich., CA **$120,000**. CHEMICAL PLANT, GRAND RAPIDS, MICH. Wolverine Solvents & Chemical Co., 1500 Century St. S. W., Grand Rapids, Mich. Bids July 27. CD 7/16.

Jezo Constr. Co., 1909 S. 74 St., West Allis, Wis., LB **$623,000**. general contract ELEMENTARY SCHOOL, WESTA ALLIS, WIS. Bd. Educ., 7510 W. National Ave., West Allis, Wis. Bids Aug. 20. CD 7/11.

Quasius Brothers, 1507 N. 15 St., Sheboygan, Wis., CA **$200,000**. 1 story, 80x200 ft., 60x80 ft., FACTORY addn., KOHLER, WIS. Kohler Co., Kohler, Wis.

▲ **S & M Building Co.**, 7826 Southfield Rd., Detroit 28, Mich. Owner Builds. **$3,000,000**. HOMES, Nancy Park Subdivision, ANN ARBOR, MICH.

Vandenburg Constr. Co., 704 Abbott Rd., East Lansing, Mich., LB **$392,500**. general contract Moores Park Elementary SCHOOL, LANSING, MICH. Bd Educ., Lansing, Mich. Manson & Carver, 517 N. Washington St., Lansing, Mich., archts.

▲ **Shubow & Hollo**, 600 Lawyers Bldg., Detroit, Mich., CA Est. **$80,000,000**. 5,200 HOMES, 1,300 acre development, Warren, Cowan and Wayne Rds., NANKIN, MICH. Tonquish Village Development, David Shubow, et al, 600 Lawyers Bldg., Detroit, Mich.

Seth E. Giem & Assocs., Kalamazoo, Mich., CA **$757,400**. general constr., JUNIOR HIGH SCHOOL, PORTAGE, MICH. Portage Twp. School Dist., Portage, Mich. Bids July 31. CD 8/10, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Missouri**—DAM AND LAKE—BA 9/11—State Conservation Comrs., I. T. Bods, dir., 219½ E. High St., Jefferson City, Mo., constr. dam and lake, 83 acres in area north of Pomona in the Dean W. Davis Recreation area, $80,000.

▲ **Minn., Golden Valley (P.O. Minneapolis)**—BA 9/14—Village, R. W. Owens, clk., Trunk Sewer Imprvt. No. 3, Section A, incl. 25,650 lin. ft. sanitary sewers; Sect. B, incl. 6,650 lin. ft. sanitary sewers. Over $1,000,000. Plans deposit $50 each section. G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, engr. CD 7/31.

† **Arkansas**—BA about 9/18—U. S. Eng., P. O. Box 867, Little Rock, water supply for fish hatchery, Norfolk Dam, North Fork River, CIVENG 03-050-57-4.

† **Missouri and Arkansas**—BA 9/19—U. S. Eng., 300 Broadway, Little Rock, Ark., steel superstructure for Long Creek Bridge at State Hy. 86 relocation east of Blue Eye, Table Rock Reservoir, White River Watershed, White River, Serial No. CIVENG-03-050-57-3. Extended date. CD 8/16.

▲ **Colo., Denver**—BA 9/28—City and Denver Co., Bd. Water Comrs., City & County Bldg., (a) completion Williams Fork Dam, existing conc. dam on Williams Fork River approx. 2 mi. from Parshall **(b)** one unit 3,000-kw hydroelectric power plant and switchyard at downstream toe of the dam **(c)** 2 access roads, one approx. 2 mi. long to powerhouse at foot of dam and one approx. 1 mi. long to parking area at top of left abutment, **(d)** earth dike on west side of reservoir area. Plans deposit $25. Tipton & Kalmbach, Inc., 200 Insurance Bldg., consult. engr. CD 7/27.

BUILDINGS—BA

Tex., Farmers Branch—DIAL—BA 9/9—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas; Dial Bldg. "7" Addn., incl. equipment room, storage area, power room, cable rooms, etc. $350,000. Charles Tarbell, c/o owner, ch. engr.

▲ **Minn., Cambridge**—SCHOOL, etc.—BA 9/19—State, Dpt. Admin., D. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, constr. 2 bldg. addns. at Cambridge State School and Hospital. $2,500,000. Plans deposit $50. W. Butler Co., 1300 Minnesota Bldg., St. Paul, archt.

Mo., Kirksville—AUDITORIUM, etc.—BA 9/27—Northeast Missouri State Teachers College, Bd. Regents, E. E. Swain, secy., 121x156 ft. auditorium, classroom addns., alterations in present Ballwin Hall. $825,000. Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis 1, archt. CD 3/23.

▲ **Minn., Richfield (P.O. Minneapolis)**—SCHOOL—BA 10/4—Bd. Educ., G. Ahlquist, clk., Richfield, 3 story, with 1 story wing, Junior High School, Fourth Ave. between 71 and 73 Sts. $1,850,000. Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. CD 3/8.

HEAVY CONSTRUCTION—SLC

▲ **Colorado**—Boettcher & Co. and John P. Elliott, 828 17 St., Denver, soon lets contract, Homestake Tunnel Project, 5.3-mi. 10-ft. horseshoe tunnel, Leadville. Total est. $33,000,000. John P. Elliott, 502 Colorado Bldg., Denver, engr.-archt. CD 6/14.

BUILDINGS—SLC

▲ **Tex., Texarkana**—HOSPITAL—Wadley Memorial Hospital, soon lets contract 5 story, bsmnt., brick, concrete hospital. **$2,600,000**. Page, Southerland & Page, 602 West Ave., Austin, archts. B. Segall, Jr., 705 Lamar St., Austin, and Reinheimer & Cox, Texarkana, engrs. CD 7/27.

(Continued on page 136)

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2½-inch stone .. 1767 lbs.

145 BATCHES AN HOUR *speed*

Paving contractor on a large air base in one of the central U. S. states needed a fast, dependable batch plant that would turn out approximately 130 batches an hour. To meet production requirements, a fully-automatic Johnson one-stop plant was installed on a rail siding, a short haul from the immediate paving area.

Supplied by rail, truck

Bulk cement, delivered by rail car, was stored at the plant in three Johnson 825-barrel silos. Sand and stone, delivered by truck and rail, were fed into three Johnson auxiliary storage bins by a traveling stacker. From there, aggregates were fed to the batch plant by inclined conveyor.

Kept two 34-E pavers busy

With this efficient material handling system, the 5-compartment bin on top of the batch plant was stocked continually. The plant accurately weighed out aggregates and cement ahead of heaviest schedules — kept two 34-E pavers busy full time pouring 12-inch slab. While the plant's top-speed potential of 180 batches an hour could not be fully utilized due to normal job delays, this *reserve production capacity* easily assured an average of 130 batches an hour. In fact, during one 11½-hour period of peak operation, it weighed out a total of 1669 batches. That's an average of better than 145 batches an hour.

Actual pour for the 11½-hour day was 2300 cubic yards of concrete — or 200 cubic yards an hour. Each batch weighed 1.38 cubic yards, and consisted of five materials — sand, two sizes of aggregates, and two types of cement.

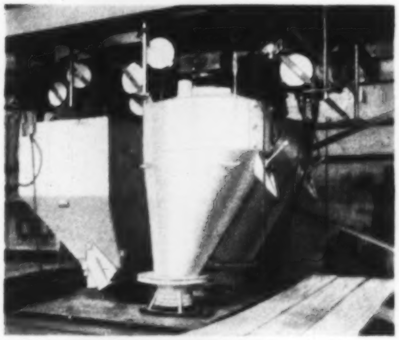
20 second batch-time

On this one-stop operation, average batcher fill-time was 10 seconds — discharge time, 10 seconds. Automatic control maintained high output, and assured pin-point weighing accuracy of every batch. A separate fully-automatic batcher was used for each of the aggregates and cement — all weighing up at the same time. These single-material Johnson batchers operate on electro-pneumatic control. Fill valves and discharge gates are automatic air-ram operated.

Johnson batch plants also can be arranged for two- or three-stop charging. Investigate the possibilities of increasing concrete production on your highway and airport paving. Get the complete story on Johnson automatic batch plants with multiple arrangements of single-material batchers, and one-man push-button control. All sizes, all types. See your Johnson distributor, or write us for latest batch plant catalog.

JOHNSON *automatic* BATCH PLANTS CJ635

paving job



Multiple batch selections

In Johnson single-material plants for roadbuilders' use, dial scale with electric cut-off switch is usually used. When more than one type of batch is required, Johnson single-material batchers can be equipped with mix selector and recorder for 12 different batches — all controlled from central operator's position. (Each aggregate batcher can be equipped with moisture compensator which automatically gives dry weight.) Up to 120 batch selections are available on Johnson automatic concrete plants for dams and commercial ready-mix installations.

C. S. JOHNSON COMPANY
CHAMPAIGN, ILL. ***(Koehring Subsidiary)***

Truck-loading with 16-S concrete mixer

Producing concrete for curbs and gutters, Kwik-Mix 16-S loads batch into trucks from ground-level. Tower loader gives 9 ft.-2 in. discharge height. Bucket holds full batch, is powered by mixer engine, dumps automatically at top of tower. Also available on 11-S Dandie®, and Kwik-Mix bituminous mixers for stockpiling and loading into trucks, overhead hoppers and forms. Ask Kwik-Mix distributor for more information, or write us.

KWIK-MIX• Port Washington, Wis.
(Koehring Subsidiary)

Puts trenching on fast "work-and-run" basis

Next job is only minutes away with this rubber-tired Trenchmobile®. It runs from job-to-job over city streets, highways or cross-country at 12.6 m.p.h. Works fast, too. Digs up to 14½ feet per minute, 8 to 16 inches wide, 5 feet deep. Sloping ladder boom undercuts walks, curbs, gutters, makes vertical set-ins. Hydraulic-control backfill blade optional. Also check big Parsons line of crawler-mounted wheel-type and ladder-type Trenchliners®.

PARSONS • Newton, Iowa
(Koehring Subsidiary)

No room to turn here — and no need to turn

Shuttling back and forth on overhead trestles, in tunnels, on narrow haul roads, Koehring 6-yard Dumptor® travels round trip without turning. It has the same speeds forward and reverse — operates with equal ease in either direction. Every turn eliminated saves 15 seconds, cuts cycle-time. You'll also like its one-second gravity-dump (no body-hoist), 24% gradeability, and other heavy-duty advantages for off-road haul.

KOEHRING Company
Milwaukee 16, Wisconsin

V65

(Continued from page 133)

HEAVY CONSTRUCTION—LB & CA

Fowler-Veranth Constr. Co., 303 S. 1 Ave. E., Duluth, Minn., LB **$104,677** (3 bidders) warehouse and dope bldg. for Air National Guard, Williamson-Johnson Airport, DULUTH, MINN. State Dpt. Military Affairs, State Capitol, St. Paul, Minn. Bids Aug. 16. CD 8/17.

City, Bd. Park Comrs., C. F. Doell, supt., City Hall, St. Paul, Minn., Own Forces **$115,000** imprv. recreation center, Bohanon Field, 50 and Bryan Aves. N.; **$180,000** recreation center, Stewart Field, 26 St. and Eleventh Ave. S., CD 10/13/49; **$185,000**, recreation center Peavy Field, between Chicago and Park Aves. and between Franklin Ave. and 22 St., MINNEAPOLIS, MINN. E. Braddock, City Hall, Minneapolis, Minn., city engr.

Arrigoni Bros., 817 Vandalia St., St. Paul, Minn., LB **$82,843** (4 bidders) sidewalk constr., 1956. Dist. 2, ST. PAUL, MINN. City, L. E. Kinvig, city purch. agt., 253 City Hall, St. Paul, Minn. Bids Aug. 21.

John P. Abramson Constr. Co., 9101 Hickman Rd., Des Moines, Iowa, CA **$49,631** spillway at Montgomery County Lake, Des Moines, IOWA. State Conservation Comn., E. 7 and Court Sts., Des Moines, Iowa. Bids Aug. 6. CD 10/20.

Chicago Bridge & Iron Co., 1305 W. 105 St., Chicago, Ill., CA **$149,800** 1 m.g. steel reservoir, CEDAR RAPIDS, IOWA. City, City Hall, Cedar Rapids, Iowa. Bids Aug. 6.

Pittsburgh-Des Moines Steel Co., 1015 Tuttle St., Des Moines, Iowa, CA **$48,780** 1 m.g. standpipe (Cedar Rapids, Iowa).

R. V. Leary Co., Inc., 937 5 St., Des Moines, Iowa, CA **$94,309** sanitary sewers, CRESCO, IOWA. City, City Hall, Cresco, Iowa. Bids Aug. 6. CD 6/4/45.

Boswell Contg. Co., 218 Insurance Exchange Bldg., Sioux City, Iowa, CA **$139,334** c. conc. paving, LeMARS, IOWA. City, LeMars, Iowa. Bids Aug. 7. CD 7/30.

Greene Limestone Co., Greene, Iowa. CA **$339,778** surf., NORTHWOOD, IOWA. Worth Co., Northwood, Iowa. Bids Aug. 6.

Jackson Constr. Co., Emmetsburg, Iowa, CA **$90,295** Paving, WEST LIBERTY, IOWA. City, West Liberty, Iowa. Bids Aug. 6. H. R. Green Co., 417 1 Ave. S.E., Cedar Rapids, Ia., engr.

H. L. Pelton, Springdale, Ark., CA **$49,956**. Sections B, pumps and C, distribution sys., WW sys. imprvs., ARCHIE, MO. City, City Hall, Archie, Mo. Bids Aug. 9. Shockley Eng. Co., 203 Reliance Bldg., 215 E. 10 St., Kansas City 6, Mo., engr.

Louis W. Arnold, Mexico, Mo., LB **$114,785**, est. $200,000 (8 bidders) athletic fields for University of Missouri, COLUMBIA, MO. Curators of University of Missouri, Dale O. Bowling, bus. mgr., 123 Jesse Hall, Columbia, Mo. Bids Aug. 15. CD 7/30.

Interstate Constr. Corp., 3621 Troost St., Kansas City, Mo., LB **$459,900** rehabilitating 2 basins at water purification plant, NORTH KANSAS CITY, MO. City, City Hall, North Kansas City, Mo. Bids Aug. 13. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs. CD 5/24/54.

† **U. S. Eng.**, P. O. Box 97, Memphis 1, Tenn., rejected bids July 10, 22,700 lin. ft. channel excav. for Item No. 1, Clarks Corner Cut-off along the St. Francis River in St. Francis Co., Serial No. CIVENG-40-041-56-203, ARKANSAS. CD 6/5.

† **Electrical Builders Associated**, Mayville, N. D., LB **$147,338** (8 bidders) Grand Forks Sub-station, Transmission Div., Missouri River Basin Proj. Spec. DC 4694. NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Fargo, N. D. Bids Aug. 14. CD 8/8.

Lipsett, Inc., 99 Park Ave., New York, N. Y., LB **$400,972**, est. $485,000 (4 bidders) Contr. 228, 161 kv transmission line constr. from, but not incl. Tower No. 5 to Sub-station No. 909 and Sub-station No. 909 to Sub-station No. 906, OMAHA, NEB. Omaha Public Power Dist., 17 and Harney Sts., Omaha, Neb. Bids Aug. 7. CD 8/2.

† **Sherwood Constr. Co. Inc.**, Box 994, Wichita, Kan. LB **$521,009**, floodway structures, Chisholm Creek Diversion, Wichita. CIVENG-34-066-57-1, KANSAS. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Aug. 8. CD 7/9.

The Denton Constr. Co., Inc., 4222 E. 40 Pl., Tulsa, Okla. CA **$466,480**, WW 55-10, 12,100 ft. 48 in. concrete pipe, TULSA, OKLA. City, City Hall, Tulsa, Okla. Bids Aug. 3. CD 7/19.

KANSAS—State Hy. Comn., Topeka,
T. F. Marbut, Emporia, Kan., CA **$224,312** (11 bidders) grading 7.096 mi. 36-58 F 092-4 (1) Marshall Co. Bids Aug. 16. CD 8/6.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
John F. Buckner & Sons, Cleburne, Tex. LB **$127,603**, est. $125,000. Service Area Bridge, Contr. D-FW-62, Tarrant Co. Bids Aug. 14. CD 7/19.

† **Mantooth Constr. Co.**, Box 287, Purcell, Okla. LB **$69,195**. const. water retarding structures, Cobb Creek, Washita River Watershed, Weatherford, Inv. SCS-5-OK-57, TEXAS. Soil Conservation Service, Dpt. Agriculture, Agricultural Center Bldg., Stillwater, Okla. Bids Aug. 13.

† **C. W. Vollmer & Co., Inc.**, Box 185, Harvey, La. LB **$843,650**. clearing Ferrells Bridge Reservoir area, Jefferson, CIVENG-16-047-57-1, TEXAS. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Aug. 8. CD 7/19.

G & M Drilling Co., Borger, Tex. CA **$273,140**. 10 water supply wells, Carson Co., AMARILLO, TEX. City, City Hall, Amarillo, Tex. Bids July 17. CD 8/3, under LB.

Boston Development Co., J. D. Boston, 3410 Lamar St., Amarillo, Tex. Own Forces. **$75,000**. sanitary sewers; **$75,000**, storm sewers, Lawndale Addn., AMARILLO, TEX. CD 8/2.

Boston Development Co., c/o J. D. Boston, 3410 Lamar St., Amarillo, Tex. Own Forces. **$76,800**. asphalt paved streets, Lawndale Addn., AMARILLO, TEX.

Boston Development Co., J. D. Boston, 3410 Lamar St., Amarillo, Tex. Own Forces. **$75,000**. natural gas lines, Lawdale Addn., AMARILLO, TEX.

Cole Williams, 7903 Manderville Lane, Dallas, Tex. LB **$191,140**, est. $200,000. 24 in. water main Ferguson Rd., Buckner to Barnes Bridge, DALLAS, TEX. City, City Hall, Dallas, Tex. Bids Aug. 14.

Purvis & York, 2312 Lucas Dr., Fort Worth, Tex. Purchase and Hire. **$47,775**. water lines, FORT WORTH, TEX.

Purvis & York, 2312 Lucas Dr., Fort Worth, Tex. Purchase and Hire. **$75,000**. sanitary sewers; **$75,000**, storm sewers, FORT WORTH, TEX. CD 7/12.

Purvis & York, 2312 Lucas Dr., Fort Worth, Tex. Purchase and Hire. **$46,000**. bldg. site area earthwork, filling, grading, FORT WORTH, TEX.

Purvis & York, 2312 Lucas Dr., Fort Worth, Tex. Purchase and Hire. **$76,750**. constr. and asph paving new streets, curb and gutter, FORT WORTH, TEX.

† **Gulf Bitulithic Co.**, 2820 Polk Ave., Houston, Tex. CA **$432,265**. airport runway repairs, HOUSTON, TEX. City, City Hall, Houston, Tex. Bids July 28.

▲† **Allis-Chalmers Mfg. Co.**, Foshay Tower, Minneapolis, Minn. CA, **$1,243,802**. hydraulic turbines for Fort Peck Dam, Wiota, Inv. 24-016-56-39, MONTANA. U. S. Eng., Riverdale, N. D. Bids July 17. CD 8/24, under LB.

MONTANA—State Hy. Comn., Helena,
City Construction Co., Fort Bldg., Great Falls, Mont. LB **$673,582**. grav. plant-mix oil 3.75 mi., First, Second, Fourteenth and Fifteenth Sts., Great Falls, Cascade Co. Bids Aug. 14. CD 7/13.

† **Chicago Bridge & Iron Wks.**, 1700 Walnut St., Phila., Pa., CA, **$139,670**. elevated storage tank, Veterans Admin. Hospital, SHERIDAN, WYO. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Aug. 6, awarded Aug. 7. CD 5/25.

Leon K. Suhm, 1792 S. Forest St., Denver, Colo., LB **$78,756**, est. over $73,008 bridge over South Platte River, W. Florida Ave., Bond Proj. 13-1 DENVER, COLO. City and Denver Co., City & County Bldg., Denver, Colo. Bids Aug. 17.

† **COLORADO**—U. S. Forest Service, Dpt. Interior, Denver Federal Center, Denver,
Van Winkle Constr. Co., Golden, Colo., LB **$112,617** (4 bidders) clearing, grading, drainage, Middle Piedra Rd. No. 764, Juan National Forest, Archuleta Co. Bids Aug. 14. CD 7/31.

BUILDINGS—LB & CA

Parsons College, Reed N. Schaefer, bus. mgr., Fairfield, Iowa, cancelled bids to have been opened Aug. 1, 2 brick, concrete DORMITORIES, FAIRFIELD, IOWA. $723,652. Will de-advertise. CD 4/17.

▲ **Berkley Constr. Co. & Upson Constr. Co.**, 8015 Forsyth Blvd., Clayton 24, Mo. Own Forces. **$1,500,000**, 210 RESIDENCES, 53-acre tract, Fox Run Subdivision, Florissant Rd., south of Lindberg Blvd., FLORISSANT, MO.

▲ **McCann Constr. Co.**, 1813 E. Lancaster St., Fort Worth, Tex., CA **$6,557,567**. construct and finance 535 HOUSING units (Capehart) Smoky Hill Air Force Base, SALINA, KAN. Base Procurement Office, Smoky Hill Air Force Base, Salina, Kan. Bids Aug. 2. CD 8/21, under LB.

▲ **Lippert Bros.**, 2800 N. Santa Fe St., Oklahoma City 5, Okla., CA **$1,300,000**. Will Rogers CAFE for turnpike at Vinita, Craig Co.; CA **$300,000**, CAFE and concession on turnpike at Miami, Ottawa Co. OKLAHOMA. Continental Oil Co., Ponca City, Okla. Hudgins, Thompson & Ball, 1411 Classen St., Oklahoma City, Okla., archts. Awarded Aug. 13.

▲ **Charles T. Hughes Constr. Co.**, 21 N.E. 29 St., Oklahoma City, CA **$1,676,768**, HIGH SCHOOL, LAWTON, OKLA. Bd. Educ., Lawton, Okla. Bids Aug. 6. CD 7/17, under LB.

Jones-Blair Paint Co., 6969 Denton Dr., Dallas, Tex., rejected bids Aug. 2, PAINT MFG. SHOP addn., DALLAS, TEX. LB **$217,151**. CD 8/17, under LB.

W. G. McMillan & Son, 709 Avenue J, Lubbock, Tex. Own Forces. **$110,000**, WAREHOUSE, LUBBOCK, TEX. CD 8/23.

Hughes Development Co., Pampa, Tex. Own Forces. **$354,150**, 27 DWELLINGS, PAMPA, TEX.

McGechie Constr. Co. Inc., Box 364, Monte Vista, Colo., CA, **$525,000**. 2 story, part bsmnt. 30,680 sq. ft. brick, stone COURT HOUSE, DELTA, COLO. Delta Co. Comrs., City Hall, Delta, Colo. Bids Aug. 1, CD 8/8, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

Idaho—BA 9/13—Bureau Reclamation, Dpt. Interior, Rupert, drilling drainage wells, Unit A approx. 5 mi. west of Paul, Group 4 of Unit B 4 to 11 mi. north of Paul, North Side Pumping Div., Minidoka Proj., Minidoka Co. Spec. 100C-258.

HEAVY CONSTRUCTION—SLC

Calif., Costa Mesa — FACTORY, etc. — Babcock Radio Eng., 7942 Woodley, Van Nuys, soon lets contract, concrete tilt up factory and office bldg., Monrovia and 6th Sts. $125,000. Leslie L. Renn & Frank E. Webb, 2817 Lafayette, New Port Beach, consult. engrs.

HEAVY CONSTRUCTION—LB & CA

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,
W. J. Henson, Contractor, P. O. Box 471, Prescott, Ariz., CA **$177,584**. select material, aggreg. base, bit. plant mix and plant mix seal coat U. S. 89, Prescott-Ashfork Hy., NON-FA 025-2 (1957) A, Yavapia Co. CD 6/27.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,
Tucson Pavers, Inc., 4217 E. 22 St., Tucson, Ariz., CA **$96,304**. plant mix seal coat on existing bit. surf. Benson-Douglas Hy., NON-FA 016-1 (1957) B, Cochise Co. Bids Aug. 7.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,
Palmer Contg. Co., 4302 S. 15 Ave., Phoenix, Ariz., CA **$94,535**. select material, aggreg. base, bit. road mix and seal coat 4¾ mi. Globe-Young Hy. S-266 (3) Gila Co. Bids July 27.

ARIZONA—State Hy. Dpt., 17 Ave., and Jackson St., Phoenix,
Cyr & Evans Contg. Co., P. O. Box 206, Tempe, Ariz., CA **$102,486**. select material, aggreg. base, bit. road mix, seal coat 3 mi. Hillside-Bagdad Hy. S-258 (11) and S 370 (2) Yavapai Co. Bids Aug. 2. CD 7/30.

ARIZONA—State Hy. Dpt., 17 Ave., and Jackson St., Phoenix,
Ariz.—**Heiskell Constr. Co.**, 1960 Grand Ave., Phoenix, Ariz., CA **$139,521**. aggreg. base, bit. plant mix, seal coat, grading, drainage 2.9 mi. Gila Bends-Phoenix Hy., NON-FA 371 (1957) A, Maricopa Co.;
Ariz.—**B. L. Gustafson Contr.**, 1700 E. Campbell St., Phoenix, Ariz., CA **$125,896**. bit. plant mix, plant mix seal coat, seal coat 7.6 mi. Gila Bend-Buckeye Hy., NON-FA 023-1 (1957 (A), Maricopa Co. Bids July 20. CD 7/13.

ARIZONA—State Hy. Dpt., 17 Ave., and Jackson St., Phoenix,
Ariz.—**Fisher Contg. Co.**, P.O. Box 6396, Phoenix, Ariz., CA **$353,730**. draining, select material, aggreg. base, bit. plant mix seal coat 6.2 mi. Yuma-Casa Grande Hy., I (52) IN 002-2 (1) Maricopa Co., CA **$144,048**, select material, aggreg. base, bit. road mix 4 mi. Oracle Jct.-Globe Hy., S 253 (7) Pinal Co.;
Ariz.—**Western Constructors, Inc.**, P. O. Box 1604 Phoenix, Ariz., CA **$184,321**. grading, drainage 1.8 mi. Oracle-Junction-Globe Hy., NON-FAS 253 (1957) A; AFE 7762, Pinal Co. Grand total $682,099. Bids July 27. CD 7/19.

Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb., LB **$186,260**. natural gas distr. sys., WINLOCK, WASH. Town, Town Hall, Winlock, Wash. Bids Aug. 14. CD 7/26.

† **U. S. Eng.**, Pittock Block, Portland, Ore., cancelled bids to have been opened Aug. 1, bank protection on left bank of Bear Creek at Medford, Jackson Co., CIVENG-35-026-57-15, OREGON. Will re-advertise. CD 7/19.

† **CALIFORNIA**—Bureau P. Rds., Dpt. Commerce, Old Mint Bldg., 5 and Mission Sts., San Francisco.
Transocean Eng., 7807 Russell City Rd., Hayward, Calif., LB **$138,550** (4 bidders) Big Bar Bridge over Trinity River, Shasta-Trinity Natl. Forest, Trinity Co.

† **CALIFORNIA**—Bureau P. Rds., Dpt. Commerce, Old Mint Bldg., 5 and Mission Sts., San Francisco,
Richards-Underdown, P. O. Box 1349, Fresno, Calif., LB **$191,169** (3 bidders) grading, surf., bridges, Kings Canyon Road, Route 3 near Cedar Grove, Fresno Co. CD 7/19/55.

BUILDINGS—LB & CA

† **Wadsworth Constr. Co.**, Idaho Falls, Idaho, CA **$124,600**. SPERT control area addns., National Reactor Testing Station, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Fall, Idaho. CD 4/18.

Edgewood Constr. Co., 143 E. Rowland St., Covina, Calif. Owner Builds, **$395,800**. 28 frame, stucco DWELLINGS, Bridge, Larkin, W. Front Sts., Tract 22945, COVINA, CALIF.

Sponseller & Sons, 6422 Crenshaw Blvd., Los Angeles 43, Calif., CA **$618,860**. 44 stucco DWELLINGS, Lots 5 to 48 (inclusive), Tract 20682, WEST COVINA, CALIF. Sponseller Highlands, 6422 Crenshaw St., Los Angeles, Calif.

Tietz Constr. Co., 11611 Brookhurst Ave., Garden Grove, Calif., Owner Builds. **$884,866**. 61 frame, stucco DWELLINGS, on Tract 3048, GARDEN GROVE, CALIF.

G. J. Heltzer & Assoc., 144 S. La Brea Ave., Los Angeles, Calif., CA **$780,000**. 65 frame, stucco DWELLINGS, LOS ANGELES, CALIF. Country Club Estates, 144 S. La Brea Ave., Los Angeles, Calif. Wm. G. Chandler, 7411 Beverly Blvd., Los Angeles, Calif., archt.

▲ **Haas & Haynie-Frandsen**, 8913 Olympic Blvd., Beverly Hills, Calif., CA **$3,502,500**. Central HEATING PLANT, and distr. sys. Los Angeles Civic Center, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids June 6. CD 6/11, under LB.

▲ **Ed Krist**, 8640 E. Center St., Paramount, Calif., Owner Builds, **$1,049,400**. 159 frame, stucco DWELLINGS, Winton, Hambleton, and Vanguard Aves., Gemmi, Boulay, Calcutta and Renault Sts., PUENTE, CALIF.

General Motors Corp., Chevrolet Motor Div., 3044 W. Grand Blvd., Detroit, Mich., Owner Builds. **$300,000**. AUTOMOBILE ASSEMBLY BLDG., VAN NUYS, CALIF. George H. Miehls & Albert Kahn, 345 New Center Bldg., Detroit, Mich., engrs.

(Continued on page 138)

all construction material available from local stocks
local labor readily available for immediate construction

BRIDGES START QUICKER . . . ARE COMPLETED SOONER WITH REINFORCED CONCRETE

From coast to coast, highway engineers are finding that reinforced concrete bridges start quicker because all necessary materials and labor are readily available from local sources. These faster starts, made possible with reinforced concrete, save months of delay.

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Ute Pass Arch Bridge west of Colorado Springs, over Fountain Creek, on U. S. 24.

Designed by the Colorado Department of Highways.

Contractors: Pueblo Bridge and Construction Co.

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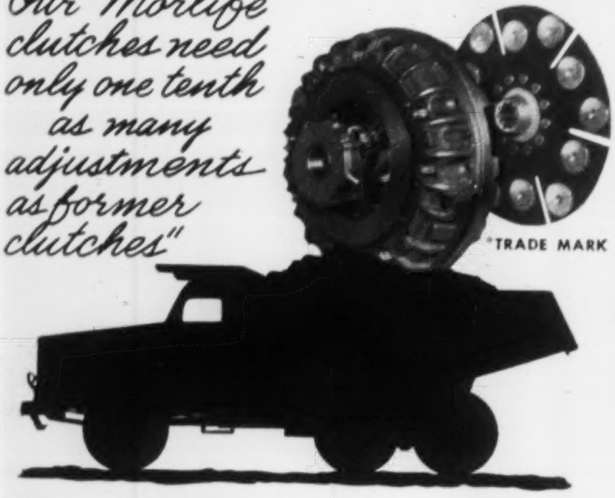
ROCKFORD

"Our Morlife clutches need only one tenth as many adjustments as former clutches"

*TRADE MARK



"MORLIFE clutch has gone 851 hours without slipping or adjustment."

"MORLIFE clutch going strong after 1695 hours, working in sand."

"MORLIFE clutches last 950 hours longer, without adjustment."

"MORLIFE clutch needs adjustment once a month, instead of daily."

"MORLIFE requires lighter handle pull and one tenth the adjustments."

"MORLIFE pulls harder and lasts six to ten times longer."

"Won't buy a unit that isn't equipped with Durable MORLIFE clutch."

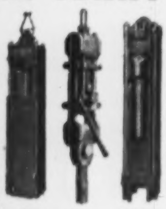
New MORLIFE* CLUTCHES and CLUTCH PLATES Give-

MORE Clutch Life (400% MORE)
MORE Torque Capacity (100% MORE)
MORE Heat Resistance (50% MORE)

These *new* ROCKFORD Clutches and Clutch Plates have been developed by ROCKFORD Clutch Engineers to take full advantage of recently discovered facing material. Actual field tests on heavy duty equipment have resulted in adoption of MORLIFE clutches by builders of tractors, earth movers, graders, shovels, cranes, trucks, oil field equipment and power units. For information how these *new* Rockford MORLIFE Clutches will improve the operation and increase on-the-job hours of heavy duty machines, write Department E.

ROCKFORD Clutch Division BORG-WARNER
313 Catherine Street, Rockford, Illinois, U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES



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(Continued from page 136)

CANADA

HEAVY CONSTRUCTION—BA

Ont., Toronto—BA 9/10—Erindale Developments Ltd., 2461 Bloor St. W., sewage treatment plant in above subdivision, $100,000. Plans deposit $25. Franklin McArthur Assocs. Ltd., Suite 213, 38A Mattson Rd., Downsview, consult. engrs.

BUILDINGS—BA

Que., Quebec City— SCHOOL—BA 9/10—Commission Scolaire de Quebec, 20 Richelieu St., 1 story, 150-200 ft. concrete fdn., brick, rein.-conc., school, $375,000. Maurice Bouchard, 376 King St., archt. CD 4/17.

Ont., North Bay—DWELLINGS—BA 9/11—Central Mortgage & Housing Corp., 40 Eglinton Ave. E. Toronto, constr. 54 single family dwellings, $400,000. H. I. Stricker, c/o owner, regional constr. engr.

Que., Pointe Aux Tremblee—PLANT—Bids Asked—Dominion Herb Distributors, 1447 St. Lawrence Blvd., Montreal, 2 story, approx. 13,000 sq. ft. per floor plant, $120,000.

HEAVY CONSTRUCTION—LB & CA

▲ **ALBERTA**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

W. C. Wells Constr. Co. Ltd., 140 Ave. F. North, Saskatoon, Sask. CA, **$2,178,532**. Contract TCHB, grading, culverts, base course, bit. coat, Mile 31 to 43.3, Trans-Canada Hy., Banff National Park. CD 8/22, under LB.

Canadian Comstock Co. Ltd., 1638 Carling Ave., Ottawa, Ont. CA, **$174,700**. street lighting and fire alarm sys., Army Camp, PETAWAWA, Ont. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. CD 12/15/54, under Public Buildings.

▲ **Dibblee Constr. Co., Ltd.**, 384 Park St., Ottawa, Ont. CA, **$1,372,112**. roadwork, etc. Army Camp, PETAWAWA, ONT. Defense Contr. Ltd., 56 Lyon St., Ottawa, Ont. CD 12/15/54, under Public Buildings.

▲† **Atlas-Winston Ltd.**, 4781 St. Catherine St. W., Montreal. LB **$3,259,525**. excav. channel and constr. dyke, Station 900 plus 00 to 930 plus 00 embankments and CPR bridge substructure, Lachine Section, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Aug. 21. CD 7/31.

Drummond, McCall & Co. Ltd., 930 Wellington St., Montreal, Que. LB **$123,982**. (3 bidders) supplying gate valves, MONTREAL, QUE. City, City Hall, Montreal, Que.

G. M. Gest Ltd., 184 Elmslie St., Ville La Salle, Que. LB **$118,760**. (4 bidders) underground conduits, north side of Metropolitan Blvd. between Jeanne Mance and Clarke Sts. and between St. Dominique and east limits of Ville St. Michel (Montreal, Que.).

Miron & Freres Ltd., 2201 Cote St. Michel Rd., Montreal, Que. CA, **$120,000**. sidewalks, pavements and sewers, POINTE AUX TREMBLES, QUE. Town, Pointe aux Trembles, Que. Awarded Aug. 16.

Fabi & Fils Ltd., 800 King St. E., Sherbrooke, Que. CA, **$186,577**. street paving, SHERBROOKE, QUE. City, City Hall, Sherbrooke, Que. J. C. Cote, Sherbrooke, Que., city engr. Awarded Aug. 15.

G. H. Montminy, Inc., 367 Richelieu St., Quebec City, Que. CA, **$80,000**. addnl. reservoir at filteration plant near Frontenac Wharf, SILLERY, QUE. City, Town Hall, Sillery, Que. Awarded Aug. 16.

BUILDINGS—LB & CA

▲ **Oland Constr. Ltd.**, 920 3 Ave. N., Lethbridge, Alta, CA, **$1,330,000**. FEDERAL BLDG. addns., alterations, LETHBRIDGE, ALTA. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 25, awarded Aug. 20. CD 8/3, under LB.

▲ **Narod Constr. Ltd.**, 1807 Fir St., Vancouver, B.C. CA, **$1,599,666**. 5 story, rein.-con. COURT HOUSE, PRINCE GEORGE, B. C. Dpt. P. Wks., Parliament Bldgs., Victoria, B. C. Bids Aug. 15. CD 8/23, under LB.

▲ **Eastwood Constr. Co. Ltd.**, Box 796, Petersborough, Ont. CA, Total est. **$2,783,000**. PLANT EXTENSION, 100x682 ft. north wing, 55x525 ft. south wing, PETERSBOROUGH, ONT. Outboard Marine & Manufacturing Co. of Canada Ltd., Monahan Rd., Petersborough, Ont. Awarded Aug. 15. CD 4/18.

Camston Ltd., 2916 Bloor St. W., Toronto, Ont. LB **$424,300**. (9 bidders) 8 story, rein.-con. PARKING GARAGE, Temperance St. between Yonge and Bay Sts., TORONTO, ONT. Parking Auth. of Toronto, 14 Bay St., Toronto, Ont. Bids July 25. CD 7/10.

B.G.L. Engineers & Builders Ltd., 7000 Cote des Neiges Rd., Montreal, Que. CA, **$130,000**. WAREHOUSE at distillery, BERTHIERVILLE, QUE. Melcher's Distilleries Ltd., Berthierville, Que. David & David, 7020 Cote des Neiges Rd., Montreal, Que., archts. Awarded Aug. 3.

Douglas Bremner Constr. Ltd., 5965 Monkland Ave., Montreal, Que. CA, **$220,000**. PLANT addn., MONTREAL, QUE. Wilsil Ltd., 1239 Mill St., Montreal, Que. Wood, Blatchford & Ship, 4444 Sherbrooke St. W., Montreal, Que., archts. Wood, McAdam & Magor, 444 Sherbrooke St. W., Montreal, Que., engrs. Awarded Aug. 15.

Walter Hyde & Co. Ltd., 1872 Notre Dame St. W., Montreal, Que. CA, **$170,000**. (12 bidders) PLANT UNIT (service bldg.) Authier St. off Cote de Liesse Rd., MONTREAL, QUE. Canadian Westinghouse Co. Ltd., 286 Sanford Ave. N., Hamilton, Ont. Bids July 6, awarded Aug. 13. CD 6/29.

▲ **J. G. Fitzpatrick Ltd.**, 1915 Prudhomme Ave., Montreal, Que. CA, Est. **$1,000,000**. RECREATION CENTRE, nine resident development 60 mi. from Gaspe Village, MURDOCHVILLE, Que. Gaspe Copper

(Continued on page 140)

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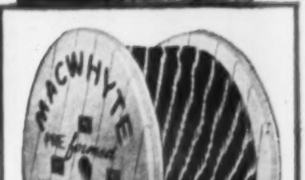

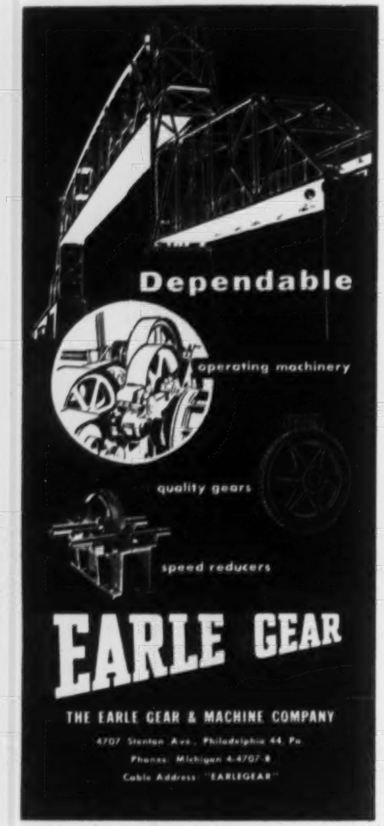

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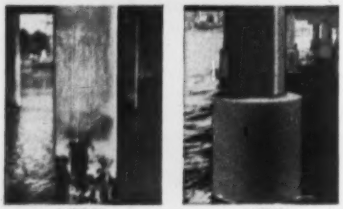

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(Continued from page 138)

Mines Ltd, c/o Noranda Mines Ltd., Royal Bank Bldg., Toronto, Ont. Bids July 27, awarded Aug. 16. CD 7/18.

Mitchell Eng. Group & Foss of Canada Ltd., 5165 Sherbrooke St. W., Montreal, Que. LB **$350,000**. 1 story, L-shaped, rein.-con., brick ELEMENTARY SCHOOL, POINTE CLAIRE, QUE. Protestant School Bd. of Pointe Claire and Beaconsfield, 17 Cedar Ave., Pointe Claire, Que. Bids June 22.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Colo., Aurora**—City, City Hall, water supply sys. large storage tank and approx. 9 mi. pipe line and filter plant, **$3,000,000**. Ken R. White, 3842 Wynkoop, Denver, consult. engr.-archt.

▲ **Md., Rockville**—City, Court House, referendum to be voted on Sept. 10, 8 mi. 24-in. line, intake station, filtration plant, revamping of water sys. within city, **$2,600,000**. CD 7/18/55.

Mass., Wakefield—Cabot, Cabot & Forbes Co., 60 State St., Boston, water in Section No. 1, new industrial development on Rte. 128, **$130,000**. Bids within 30 days.

N. Y., Grand Island—Town, Village Hall, expansion of Water District 2, incl. 2½ m.g. filter beds, new intake in West River new 1 m.g. steel pre-treatment basin, 2 chemical feeders, 2 chlorinators and pumping facilities, **$250,000**. CD 11/1/46.

O., North Royalton—Village, Village Hall, bond election Nov. 6, water mains, **$175,000**. CD 11/11.

▲ **Okla., Ardmore**—City, City Hall, voted bonds, water works extens., **$1,250,000**. Rex Collins, McAlester, consult. engrs. CD 8/8.

Tex., Bryan—City, c/o Fred Sandlin, city engr., constr. 1 MGD steel elevated water reservoir, **$175,000**. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, consult. engrs. CD 5/31.

Tex., Cedar Hill—Town, Town Hall, voted bonds, exten. water mains, **$125,000**.

Tex., Hillsboro—City, revising water supply, **$176,000**.

Tex., Houston—Harris Co. Water Control & Improvement Dist. No. 63, Courthouse Commissioners Court, deep water supply wells, **$100,000**.; elevated water storage, **$100,000**.

Tex., Oklaunion—Oklaunion, Ind. School Dist., water supply main from town to Vernon, **$55,000**; elevated water storage tank, and some lines, **$45,000**. Joe E. Ward, Box 3157, Wichita Falls, consult. engr.

▲ **Tex., Paris**—City, City Hall, 10-in. or larger c. i. water lines, **$1,116,172**.; ½-mi. gal elevated water storage tank, **$113,650**.; 1-mi. gal. elevated steel water storage tank, **$201,950**.; 2-mi. gal. ground water storage tank & pump station, **$117,800**.; 30-in. water supply line from Lake Crook, **$295,600**.; water service mains less than 8-in., **$167,468**.; cleaning and recoating existing water lines, **$96,650**. Forrest & Cotton, 803 Praetorian bldg., Dallas, consult engrs. CD 3/14/52.

Tex., Wichita Falls—Water Control & Imprvt. Dist. 5, Pete Heffington, pres., 301 Scott Rd., water lines, **$425,000**; water storage, **$75,000**; water supply, **$100,000**.

▲ **Wis., Oak Creek**—City, City Hall, water system. Est. cost between **$3,807,000-$15,010,000**, depending whether other municipalities join in venture. Maxon & Moore, 1744 N. Farwell Ave., Milwaukee, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Ala., Huntsville**—City, City Hall, sanitary and collection sewers, treatment plant. **$8,500,000**. No. funds available. J. W. Goodwin Eng. Co., 2111 7th Ave. S., Birmingham, consult. engr. CD 5/11/53.

▲† **Calif., Santa Barbara**—City, City Hall, **$1,700,000** bond election Sept. 18, sewer lines. CD 4/5/46.

▲ **Conn., Branford**—Town, Town Hall, complete construction of town-wide sewerage sys., 14.3 mi. laterals, 4.2 mi. trunk sewers, 3-pumping stations **$2,056,000**; sewage treatment plant, **$681,000**. Bowe, Albertson & Assocs., 75 West St., New York, N. Y., consult. engrs. CD 12/5/46.

Conn., Greenwich—Town, Town Hall, sewer, Bruce Park Ave., and Indian Field Park, **$165,000**.

Conn., Ridgefield—Town, Town Hall, modernizing sewerage sys. **$100,000**. Bowe, Albertson & Assocs., 75 West St., New York, consult. engrs.

▲ **Kan., Arkansas City**—City, voted **$1,100,000** bonds Aug. 7, sewage plant. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 6/1/55.

Mass., Wakefield—Cabot, Cabot & Forbes Co., 60 State St., Boston, sewers in Section No. 1, new Industrial Development on Rte. 128, **$100,000**. Bids within 30 days.

Mass., Wakefield—Town, P. Wks. Dist., 1 Lafayette St., sewer to new Industrial Development on Rte. 128 and Ejector Station on Development, **$175,000**. Bids within 30 days.

▲ **Mich., Flint**—City, Harry K. Cull, clk., voted bonds, storm and sanitary sewers, **$2,500,000**. CD 7/9.

▲ **Mich., Lapeer**—City, bond election in January, sewage treatment plant, **$545,000**. sewers and water mains **$550,000**.

N. J., Caldwell—Caldwell Borough, imprv. sewerage treatment plant and disposal system. **$123,000**. George Valente, Box 191, consult. engr.

N. J., Morristown—Town, Town Hall, incinerator. **$300,000**. Victor Woodhull, 110 S. St., consult. engr.

N. J., Scotch Plains—Scotch Plains Twp., sanitary sewerage sys. in south side of township. **$150,000**. Ernest Lawrence, Scotch Plains, twp. engr.

N. J., Somerville—Borough of Somerville, enlarging Somerville sewer plant, **$610,000**. Russel Riker, 50 Stockton Rd., Princeton, consult. engr.

Okla., Ardmore—City, City Hall, voted bonds sewage disposal plant, **$900,000**. Rex Collins, McAlester, consult. engrs. CD 8/8.

Okla., Claremore—City, City Hall, outfall sewers and sewage disposal plant, **$595,000**. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult engrs. CD 5/2/51.

Tex., Cedar Hill—Town, Town Hall, voted bonds, sanitary sewer col. lines, **$375,000**. CD 11/3.

▲ **Tex., Corpus Christi**—City, City Hall, sanitary Sewerage sys. on west side, **$3,200,000**. Reagan & McCaughan, c/o Wilson Bldg., Corpus Christi, and Sigler, Clark & Winston, Box 428, Weslacoe, consult. engrs.

Tex., Duncanville—T. K. Irwin & Ralph B. Leonard & Assoc., c/o Merc. Sec. Bldg., Dallas, storm sewers, **$75,000**; sanitary sewers, **$77,000**, in "Red Bird Village".

Tex., Houston—Edgebrook Co., c/o Lewis O. Tyra & Assoc., 5519 Lawndale, storm sewers, **$75,000**; sanitary sewer, **$78,500**.

Tex., Houston—Harris Co. Water Control & Imprv. Dist No. 63, c/o Courthouse Commr. Court, sewage treatment plant, **$250,000**.; sanitary sewers, **$225,000**. drainage system, **$500,000**.

Tex., Houston—Prokop Bldg. Co., 6905 Long Point, storm sewers, **$75,000**; sanitary sewers, **$75,000**, in sec. of Windsor Village.

Tex., Paris—City, City Hall, Camp Mabry Sewage treatment plant imprvs., **$75,000**.; repairs to existing sewage treatment plant, **$75,000**. Forrest & Cotton, 803 Praetorian bldg., Dallas, consult engrs. CD 3/14/52.

Tex., Snyder—City, M. K. Stevenson, mayor, addnl 100,000 lin. ft. various sized sanitary sewer lines, **$150,000**. Smith & Cooper, 201 Ave. R., Lubbock, consult. engrs.

Wash., Yakima—City, City Hall, city-wide storm drain system, **$440,000**. Work may begin next year. S. Hobbs, city engr.

Wyo., Cheyenne—City, City Hall, voted **$225,000**, bonds, Aug. 15, sewers. CD 7/31.

BRIDGES

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comm., Raleigh,

Bladen Co.—bridge and approaches over Cape Fear River at Elizabethtown, U. S. 701, **$657,000**.

Carteret Co.—new bridge and approaches U. S. 70 over Gallants Channel between Beaufort and Morehead City, **$800,000**.

Richmond Co.—half cost of new bridge U. S. 74 at Richmond-Anson county line, **$375,000**.

Rowan Co.—widen structures U. S. 52 from Sailsbury to the Stanly Co. line, **$85,000**.

Mich., Flint—City, Harry K. Cull, clk., voted bonds. West Third Ave. Bridge, **$300,000**. CD 7/9.

Tex., Houston—Harris County, W. Kyle Chapman, Commr., Courthouse, replacement of vehicle bridge over Sims Bayou on Mykawa Rd., **$110,000**.

STREETS AND ROADS

Ill., Waukegan—City, City Hall, bit. paving, storm sewers, sidewalks, curbs and gutters, Marquette Highlands 3rd subd. **$270,000**. Milton E. Staben & Assoc., 222 Market St., consult. engrs.

Mass., Wakefield—Cabot, Cabot & Forbes Co., 60 State St., Boston, roads in Section No. 1 new industrial development on Rte. 128, **$270,000**. Bids within 30 days.

▲ **MICHIGAN**—State Hy. Comn., Stevens T. Mason Bldg., Lansing,

Ottawa and Muskegon Counties—Grand Haven-Muskegon Expressway, Grand Haven-Muskegon, **$11,000,000**.

Wayne Co.—Detroit-Toledo Expressway section, Rockwood to M-112, Detroit-Toledo, **$5,000,000**. Carlos Weber, ch. engr.

Mich., Berkley—City, John W. Short, city mgr., 3322 Coolidge St., widening 11 Mile Rd. from Coolidge to Woodward Ave., **$150,000**. Giffels Engr. Co., 222 Sunnybrook St., Royal Oaks, consult. eng. CD 7/9.

▲ **Mich., Flint**—City, Harry K. Cull, clk. voted bonds, paving, widn., streets, **$1,070,000**. CD 7/9.

N. J., Waldwick—Borough of Waldwick, constr. sidewalks, curbs, and streets (Summit Ave.), **$620,000**. Fraleigh & Schwanewede, 201 The Plaza, Teaneck, consult. engrs.

▲ **NORTH CAROLINA**—State Hy. & P. Wks., Comn., Raleigh,

Bertie Co.—grading and structures for Windsor Bypass 5 mi. US 17 and US 13, **$325,000**.

Bladen Co.—grading, structures and resurf. 10 mi. US 701 from Elizabethtown south through Clarkton, **$465,000**.

grading, structures and resurf 14.5 mi. US 701 from 0.6 mi. north of NC 53 north of Elizabethtown to point 1 mi. south of the Sampson Co. line, **$930,000**.

Caswell Co.—grading, structures, right of way 11 mi. NC 86 from point east of Yanceyville to the Virginia State line, **$725,000**.

(Continued on page 142)

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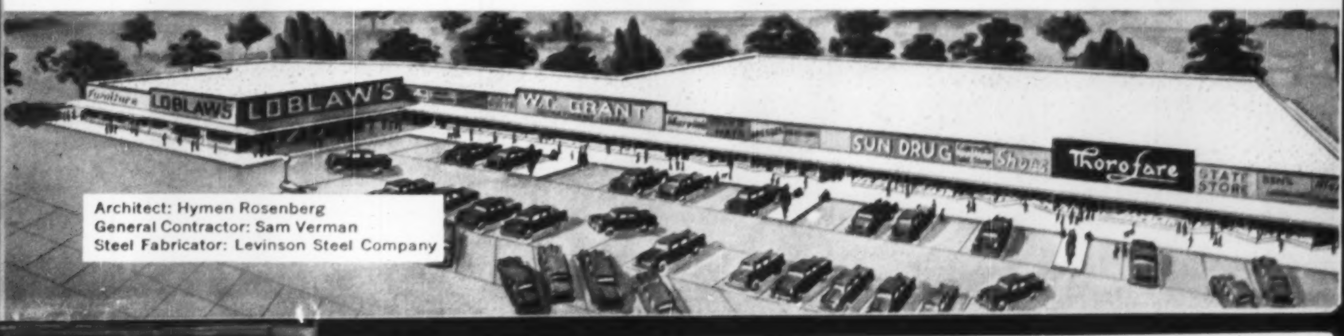

Architect: Hymen Rosenberg
General Contractor: Sam Verman
Steel Fabricator: Levinson Steel Company

(Continued from page 140)

Craven Co.—paving dual lane 6.6 mi. US 70 from James City toward Cherry Point, **$790,000**.

Dare Co.—grading and structures for relocation 15.3 mi. US 158 from Wright Memorial Bridge to Whalebone, **$750,000**.

Duplin Co.—widen and paving through Wallace 1.5 mi. US 117, **$175,000**.

Graham Co.—grading, structures, right-of-way and paving 4 mi. NC 28 from Johnson Gap to Swain Co. line, **$365,000**.

Guilford Co.—grading, structures, paving 2.1 mi. US 70 from E. Lee St. and Ivy St. to US 70, **$352,000**.

Harnett Co.—grading, structures, paving 3.4 mi. US 421 from Dunn to Erwin (new location), **$450,000.**

grading, structures, paving 10.6 mi. US 421 from intersect US 421, 15-A and NC 210 north of Lillington to Erwin, **$706,000**.

Hertford and Bertie Counties — grading, structures, widen 8 mi. NC 350 from Aulander to Ahoskie, **$260,000**.

Iredell Co.—grading, structures and right-of-way 9 mi. US 21 from point south of Statesville to point north of Statesville, **$1,700,000**.

Jackson Co.—grading, structures, right-of-way, paving 7.3 mi. US 19-A and 23 from Sylva to Willets, **$725,000**.

Johnston Co.—widen and reconstr. 12 mi. NC 50 from Benson to Sampson Co. line, **$340,000**.

Lenoir Co.—paving Kinston Bypass 2.3 mi. US 70, **$130,000**.

Martin Co.—widen and resurf. 11 mi. US 17 from Beaufort conuty line to Williamston Bypass, **$275,000**.

McDowell Co.—grading, structures, right-of-way, paving 6 mi. US 221 from point 5 mi. north of the Rutherford county line north, **$720,000**.

Mecklenburg Co.—grading, structures and right-of-way 4 mi. NC 16 from point near Charlotte City limits west, **$828,000**.

Mitchell Co.—grading, structures, right-of-way, paving 5.5 mi. NC 26 from Spruce Pine to Gillespie Gap, **$500,000**.

grading, structures, right-of-way, paving 5 mi. US 19-E from point east of Mitchell-Yancey County line east toward Spruce Pine, **$525,000**.

Moore Co.—paving Southern Pines Bypass (dual lane) 5.2 mi. US 1, **$450,000**.

Nash Co.—right-of-way 9.2 mi. US 64 between Nashville and Rocky Mount for addnl. lane, **$330,000**.

Nash and Wilson Counties—grading, structures, right-of-way 10 mi. US 301 for 4-lane paving from point 3 mi. north of Wilson to Rocky Mount Bypass, **$900,000**.

New Hanover Co.—grading, structures, right-of-way 7 mi. US 117-A for new location from US 17 north to Castle Hayne, **$275,000**.

paving approaches and causeway to Wrightsville Beach 1.2 mi. US 74 and 76, **$100,000**.

Orange Co.—grading, structures 3.2 mi. NC 54 from Morgan Creek to NC 54 west of Carrboro, **$430,000**.

Sampson Co.—grading, structures, right-of-way, paving 12 mi. US 421 from point east of Harnett county line to NC 242 toward Salemburg, **$524,000**.

Stanly Co.—grading, structures, right-of-way 4.4 mi. NC 27 from point 1.2 mi. southwest of Albemarle northeast to Jct. of NC 27 at East City limits of Albemarle, **$515,000**.

Swain Co.—grading, structures, right-of-way and paving 2 mi. NC 28 from Nantahala Bridge to US 19, **$200,000**.

Transylvania Co.—grading, structures, right-of-way and paving 3 mi. NC 280 from Jct. US 276 northeast of Brevard to Brevard (4-lanes), **$450,000**.

Tyrrell Co.—grading and structures 2.65 mi. US 64 for Columbia Bypass, **$335,000**.

Vance Co.—paving 10.1 mi. US 1 Henderson Bypass, **$700,000**.

Wake Co.—paving 2.2 mi. US 1 from N. Dawson St. to Westinghouse Plant, **$500,000**.

Wilson Co.—grading, structures, right-of-way 6 mi. US 301 from South end of Wilson Bypass to point 1 mi. south of Lucama, **$480,000**.

Yadkin Co.—grading, structures, right-of-way 7.9 mi. US 421 from east end of Proj. 7940 to US 601, **$490,000**.

O., **Wapakoneta**—City, City Hall, bond election Nov. 6, street imprvs., **$200,000**.

▲ **TEXAS**—Texas Turnpike Auth., 1st Federal Bldg., Austin, Zone 1, plans by Preston M. Geren, 1607 Fort Worth National Bldg., Fort Worth, constr. turnpike bldgs., admin. bldg., maintenance bldg., restaurants and filling stations, Fort Worth-Dallas Toll Road. **$1,030,000**. Bids early in November. CD 3/28/55.

Tex., **Houston**—City, City Hall, retopping Main and Travis Sts., downtown area **$90,000**.; retopping of 11.2 mi. city streets, **$170,000**. J. M. Nagle, Direc. Pub. Wks. Dpt. CD 2/2.

Tex., **Houston**—Harris County Water Control & Imprv. Dist. No. 63, Courthouse Commissioners Court, street paving imprvts., **$371,875**.

Wash., **Olympia**—City, City Hall, widen, pave and light Plum St., Union Ave., Franklin and Columbia Sts., connecting with Olympia freeway. **$400,000**.

▲ Wash., **Yakima**—City, City Hall, development of arterials, **$1,300,000**; rehabilitating all streets **$2,500,000**. Work may begin next year. S. Hobbs, city engr. CD 11/23/55.

EARTHWORK, WATERWAYS

▲† **Md., Annapolis**—LAND RECLAMATION—Dist. P. Wks. Officer, Severn River Naval Command, U. S. Naval Academy, Annapolis, plans by Frederick R. Harris, Inc., 27 William St., New York 5, N. Y., land reclamation, Faragut Hill and Dewey-Santee Hill, U. S. Naval Academy. **$7,500,000** Appropriated. CD 3/22.

▲ **Texas**—West Central Texas Municipal Water Dist., M. E. Daniel, pres., Breckenridge, dam and water pipe lines; dam on Hubbard Creek; main line to run to Abilene, Anson, Albany and Breckenridge for domestic supply. **$10,000,000**. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Livingston—Polk County Soil Conservation Dist., 1,000, farm earthen ponds, **$500,000**.

Tex., Midland—Magnolia Petroleum Co., earthwork and drill 2 L.P.G. storage wells, 2,650 ft. each near Tank Farm, for products storage prior to entry into 8-in. line. **$100,000**.

AIRPORTS

† **Ala., Maxwell Air Force Base**—AIR FORCE BASE—U. S. Eng., 2301 Grant St., Mobile, Zone 7, operational and training facilities, housing and community facilities. **$215,000** appropriated.

▲† **Ala., Mobile**—AIR FORCE BASE—U. S. Eng., 2301 Grant St., Mobile, housing and community facilities, Brookley Air Force Base, **$1,541,000** appropriated. CD 9/16/55.

▲† **Ariz., Chandler**—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., operational and training facilities, maintenance facilities, Williams Air Force Base. **$6,347,000** appropriated. CD 8/26/55.

▲ **Ariz., Phoenix**—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., operational and training facilities, maintenance facilities, Luke Air Force Base. **$2,902,000** appropriated. CD 12/10/52.

▲† **Ariz., Tucson**—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. operational and training facilities, Davis-Monthan Air Force Base. **$503,000**. CD 12/5/52.

▲† **Ariz., Yuma**—AIR BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., operational and training facilities, maintenance facilities, administrative facilities, housing and community facilities, Yuma County Airport. **$3,545,000** appropriated. CD 8/4/55.

▲† **Ark., Jacksonville**—AIR FORCE BASE—U. S. Eng., P.O. Box 867, Little Rock, operational and training facilities, maintenance facilities, supply facilities, administrative facilities, housing and community facilities, Little Rock Air Force Base. **$1,528,000** appropriated.

▲† **Calif., Beale Air Force Base**—AIR FORCE BASE—U. S. Eng., 1209 8 St., Sacramento, operational and training facilities, supply facilities and utilities and ground imprvs. **$13,395,000** appropriated. CD 1/14/52.

▲† **Calif., Castle Air Force Base**—AIR FORCE BASE—U. S. Eng., 180 New Montgomery St., San Francisco, operational and training facilities, maintenance facilities, hospital and medical facilities and housing and community facilities. **$2,179,000** appropriated. CD 9/29.

▲† **Calif., Hamilton Air Force Base**—AIR BASE—U. S. Eng., 180 New Montgomery St., San Francisco, operational and training facilities, maintenance facilities, utilities, and ground improvements, **$2,966,000** appropriated. CD 9/9.

▲† **Calif., March Air Force Base**—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, operational and training facilities, maintenance facilities, housing and community facilities, March Air Force Base, **$5,156,000** appropriated. CD 10/4.

▲† **Calif., Muroc**—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, research, development and test facilities, housing and community facilities, Edwards Air Force Base. **$5,488,000** appropriated.

▲† **Calif., Oxnard**—AIR BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, operational and training facilities, maintenance facilities, housing and community facilities and ground improvements, and land acquisition, Oxnard Air Force Base, Camarillo, **$2,392,000 appropriated**. CD 9/9/54.

† **Calif., Pleasanton**—AIR FORCE BASE—U. S. Eng., 180 New Montgomery St., San Francisco, utilities and ground imprvs., Parks Air Force Base. **$111,000** appropriated.

▲† **Calif., Sacramento**—AIR FORCE BASE—U. S. Eng., 1209 8 St., Sacramento, operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, utilities and ground imprvs., Mather Air Force Base. **$21,650,000** appropriated.

▲† **Calif., Sacramento**—AIR BASE—U. S. Eng., 1209 8th St., administrative facilities, housing and community facilities, McClellan Air Force Base, **$1,424,000** appropriated.

† **Colo., Colorado Springs**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., housing and community faciilties, Ent Air Force Base, **$342,000** appropriated.

▲† **Del., Dover**—AIR FORCE BASE—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., operational and training facilities, supply facilities, administrative facilities, housing and community facilities, utilities and ground imprvs., Dover Air Force Base. **$3,195,000** appropriated. CD 11/6/53.

▲† **Del., New Castle**—AIR BASE—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., New Castle County Airport, operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, utilities and ground imprvs. **$6,184,000** appropriated.

† **D. C., Wash.**—AIRPORT—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., maintenance facility, Washington National Airport. **$275,000** appropriated.

▲† **Fla., Cocoa**—AIR FORCE BASE—U. S. Eng., P.O. Box 4970, Jacksonville, operational and training facilities, research development and test facilities, housing and community facilities, utilities and ground imprvs., Patrick Air Force Base. **$15,169,000** appropriated. CD 5/24/49.

▲† **Fla., Eglin Air Force Base**—AIR FORCE BASE—U. S. Eng., 2301 Grant St., Mobile, Ala., operational and training facilities, maintenance facilities, research, development and test facilities, hospital and medical facilities, housing and community facilities, utilities and ground imprvs., **$21,094,000** appropriated.

▲† **Fla., Homestead**—AIR FORCE BASE—U. S. Eng., P.O. Box 4970, Jacksonville, operational and training facilities, hospital and medical facilities, housing and community facilities, utilities, ground imprvs., Homestead Air Force Base. **$1,694,000** appropriated. CD 9/16.

▲† **Fla., Tampa**—AIR FORCE BASE—U. S. Eng., P.O. Box 4970, Jacksonville, operational and training facilities, maintenance facilities, housing and community facilities, Macdill Air Force Base. **$3,262,000** appropriated. CD 8/18/55.

▲† **Fla., West Palm Beach**—AIR FORCE BASE—U. S. Eng., P.O. Box 4970, Jacksonville, operational and training facilities, housing and community facilities, utilities and ground imprvs., Palm Beach Air Force Base. **$1,545,000** appropriated. CD 9/19.

▲† **Ga., Macon**—AIR BASE—U. S. Eng., 200 E. St. Julian St., Savannah, operational and training facilities, housing and community facilities, and utilities and ground improvements, Robins Air Force Base, **$5,478,000** appropriated. CD 9/19.

† **Ga., Marietta**—AIR FORCE BASE—U. S. Eng., 200 E. St. Julian St., Savannah, housing and community facilities, Dobbins Air Force Base. **$345,000** appropriated.

▲† **Ga., Savannah**—AIR BASE—U. S. Eng., 200 E. St. Julian St., storage facilities and other extens. for base operations, Hunter Air Force Base. **$1,131,000** appropriated. CD 8/30/55.

▲† **Idaho, Mountain Home**—AIR FORCE BASE—U. S. Eng., City-County Airport, Walla Walla, Wash. operational and training facilities, maintenance facilities, housing and community facilities, utilities and ground imprvs., Mountain Home Air Force Base. **$2,064,000** appropriated. CD 11/5/51.

▲† **Ill., Scott Air Force Base**—AIR FORCE BASE—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54 operational and training facilities, supply facilities **$3,296,000**. appropriated. CD 6/29/51.

▲† **Iowa., Sioux City**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., operational training facilities AM and OQ dormitories for men; readiness crew facilities; airfield paving; runway exten., Sioux City Air Force Base. **$2,288,000** appropriated.

Kan., Lawrence—AIRPORT IMPRVS.—City, voted $50,000 bonds Aug. 7, airport imprvs. **$100,000**.

▲† **Kan., Salina**—AIR BASE—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Smoky Hill Air Force Base operational and training facilities, hospital and medical facilities, administrative facilities, housing and communty facilities, utilities and ground imprvs. **$3,882,000** appropriated. CD 9/12.

Kan., Salina—AIRPORT—City, City Hall, voted $375,000 bonds Aug. 7, airport imprvs. **$750,000**. CD 8/15.

Kan., Topeka—AIRPORT—City, City Hall, plans by Williamson, Loebsack & Assoc., 2015 Gage St., airport imprvs. **$106,102**. CD 4/13/50.

▲† **Kan., Topeka**—AIR BASE—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Forbes Air Force Base, operational and training facilities, housing and community facilities. **$1,271,000** appropriated. CD 9/12.

▲† **La., Alexandria**—AIR FORCE BASE—U. S. Eng., P. O. Box 867, Little Rock, Ark., operational and training facilities, maintenance facilities, administrative facilities, housing and community facilities, England Air Force Base. **$2,919,000** appropriated.

▲ **La., Houma**—AC&W FACILITIES—U. S. Eng., Box 1229, Galveston, Tex., design of operations AC&W facilities, Houma Naval Air Station. **$5,000,000**. Stone & Pitts and Carter, & Burgess, 1872 Calder St., Beaumont, Tex., consult. engrs.-archts.

▲† **La., Shreveport**—AIR FORCE BASE—U. S. Eng., 300 Broadway, Little Rock, Ark., operational and training facilities, maintenance facilities, administrative facilities, housing and community facilities, utilities and ground imprvs., Barksdale Air Force Base. **$2,117,000** appropriated.

▲† **Me., Bangor**—AIR FORCE BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., operational and training facilities, maintenance facilities, supply facilities, housing and community facilities and utilities and ground imprvs., Dow Air Force Base. **$7,665,000** appropriated.

▲† **Me., Limestone**—AIR FORCE BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., operational and training facilities, maintenance facilities, supply facilities and housing and community facilities, Loring Air Force Base, **$2,522,000** appropriated.

▲† **Me., Presque Isle**—AIRPORT FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., operational and training facilities, maintenance facilities, housing and community facilities, utilities, ground imprvs., Presque Isle Air Force Base. **$8,057,000**.

▲† **Md., Andrews Air Force Base**—AIR FORCE BASE—U. S. Eng., First and Douglass St. N.W., Wash. 25, D. C., operational and training facilities, supply facilities, housing and community facilities, utilities

(Continued on page 147)

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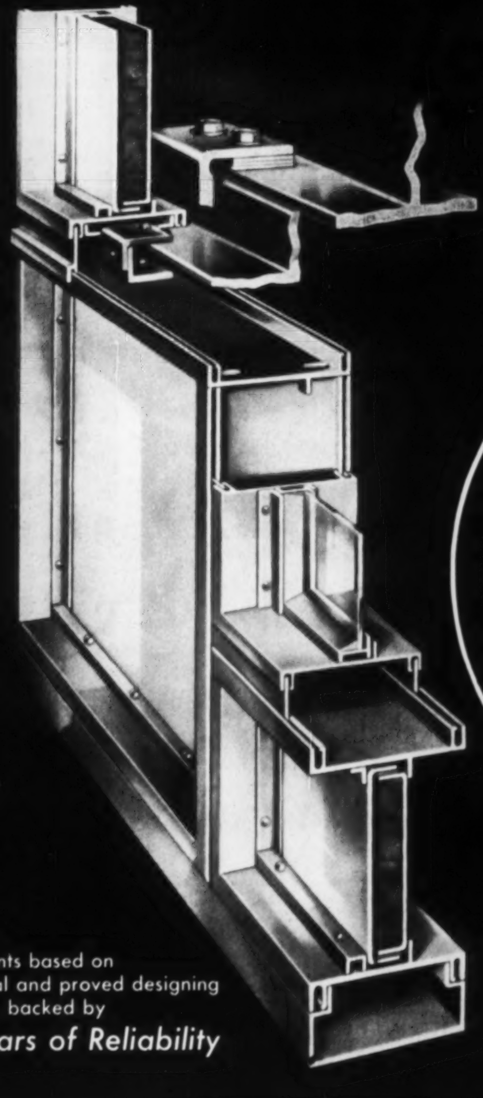

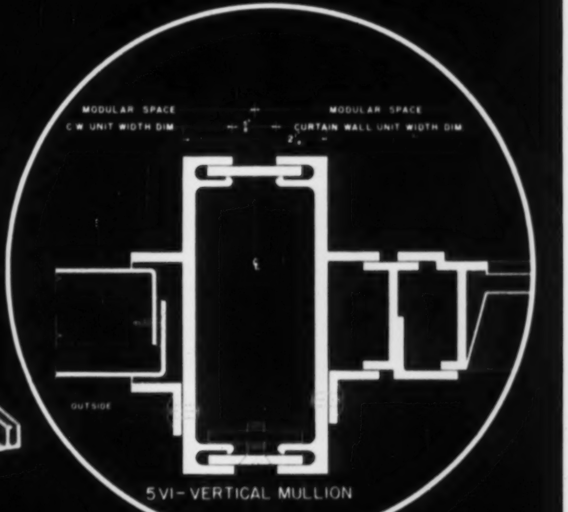

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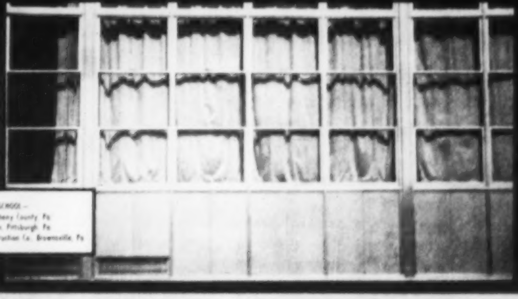

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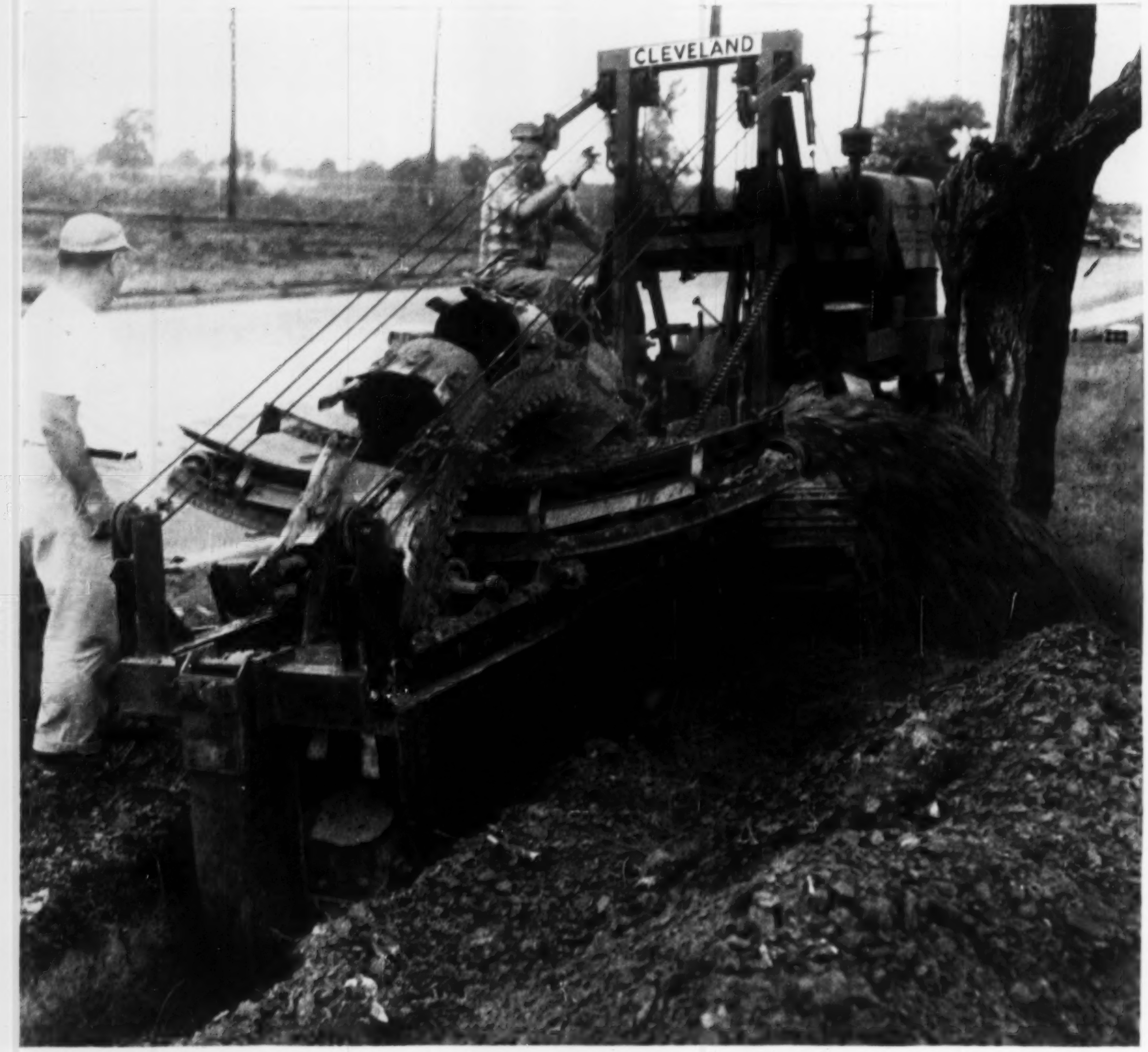

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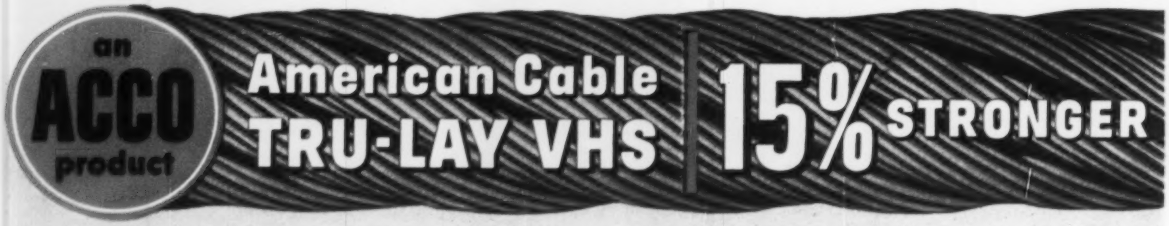

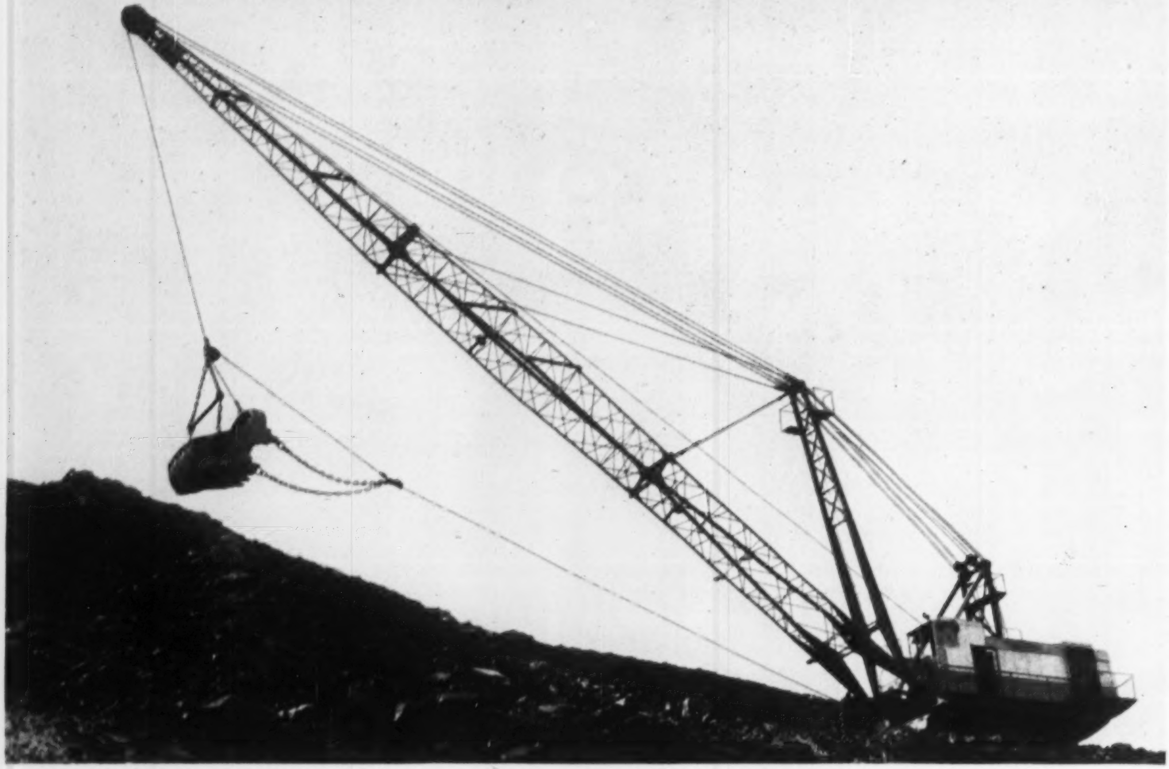

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VHS
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(Continued from page 142)

and ground imprvs. $7,335,000 appropriated. CD 10/1/51.

▲† **Mass., Bedford**—AIRFIELD—U. S. Eng., 847 Commonwealth Ave., Boston, operational and training facilities, maintenance facilities, research development and test facilities, housing and community facilities, utilities and ground imprvs., Laurence G. Hanscom Field, $6,939,000 appropriated.

▲† **Mass., Falmouth**—AIRPORT FACILITIES—U. S. Eng., 150 Causeway St., Boston, operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, utilities and ground imprvs., family housing, Otis Air Force Base, $11,577,000.

▲† **Mich., Kinross**—AIRPORT IMPRVS—U. S. Eng., 600 E. Jefferson St., Detroit, operational and training facilities, maintenance facilities, housing and community facilities, land acquisition, Kinross Air Force Base. $2,156,000 appropriated. CD 9/29.

▲† **Mich., Manistee**—AIRPORT FACILITIES—U. S. Eng., 600 E. Jefferson Ave., Detroit, Zone 26, operational and training facilities, maintenance facilities, supply facilities, administrative facilities, housing and community facilities and utilities and ground imprvs., Manistee Air Force Base. $2,906,000.

▲† **Mich., Marquette**—AIRPORT FACILITIES—U. S. Eng., 600 E. Jefferson Ave., Detroit, Zone 26, operational, and training facilities, maintenance facilities, supply facilities, administrative facilities, housing and community facilities, utilities and ground imprvs., K. I. Sawyer Municipal Airport, $5,051,000.

▲† **Mich., Oscoda**—AIR BASE—U. S. Eng., 600 E. Jefferson Ave., Detroit, Zone 26, operational and training facilities, maintenance facilities, supply facilities, administrative facilities, housing and community facilities, utilities and ground imprvs., and family housing, Wurtsmith Air Force Base. $3,278,000 appropriated.

Mich., Plymouth—AIRPORT—City, Albert Glassford, mgr., 175 S. Main St., defeated $500,000 bonds Aug. 7, municipal airport.

▲† **Minn., Duluth**—AIR FORCE BASE—U. S. Eng., 1217 Post Office & Custom House, St. Paul, ready aircraft shelter for maintenance work, auto maintenance shop addns., aviation fuel storage facilities, parachute shop and dinghy, test cells for jet engines, service club, Duluth Air Force Base, $1,200,000 appropriated.

▲† **Minn., Minneapolis**—AIRPORT FACILITIES—U. S. Eng., 1217 Post Office and Custom House, St. Paul, operational and training facilities, maintenance facilities, Minneapolis-St. Paul International Airport, $3,015,000.

▲† **Miss., Columbus**—AIR FORCE BASE—U. S. Eng., 2301 Grand St., Mobile, Ala., operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, utilities and ground imprvs., Columbus Air Force Base. $14,518,000 appropriated. CD 9/16.

▲† **Miss., Greenville**—AIR FORCE BASE—U. S. Eng., 2301 Grant St., Mobile 7, Ala., operational and training facilities, maintenance facilities, supply facilities, Greenville Air Force Base, $2,483,000 appropriated.

▲† **Mo., Grandview**—AIRPORT FACILITIES—U. S. Eng., Federal Office Bldg., Kansas City, Mo., operational and training facilities, maintenance facilities, housing and community facilities, utilities and ground imprvs., Grandview Air Force Base. $1,673,000 appropriated. CD 6/30/52.

▲† **Mont., Glasgow**—AIRPORT FACILITIES—U. S. Eng., City-County Airport, Walla Walla, Wash., operational and training facilities, maintenance facilities, utilities and ground improving facilities, family housing, Glasgow Air Force Base. $2,470,000 appropriated. CD 2/6/56 and 4/27/55.

▲† **Mont., Great Falls**—AIR BASE—U. S. Eng., City-County Airport, Walla Walla, Wash., Malmstrom Air Force Base, operational and training facilities, maintenance facilities, housing and community facilities. $1,236,000 appropriated.

▲† **Neb., Fort Crook**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Offutt Air Base, operational and training facilities, supply facilities, housing and community facilities, utilities and ground imprvs. and family housing. $5,697,000 appropriated.

▲† **Neb., Lincoln**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Lincoln Air Force Base, operational and training facilities, maintenance facilities, housing and community facilities and utilities and ground imprvs. $4,685,000 appropriated.

† **Nev., Indian Springs**—AIR BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., Indian Springs Air Force Base, housing and community facilities and utilities, ground imprvs. and family housing. $961,000 appropriated. CD 7/5/55.

▲† **Nev., Reno**—AIR BASE—U. S. Eng., 1209 8th St., Sacramento, Calif., Stead Air Force Base, supply facilities, housing and community facilities, utilities and ground imprvs. $2,221,000 appropriated.

▲† **N. J., Lakehurst**—NAVAL AIR STATION—Dpt. Navy, Phila. Naval Base, Phila., Pa., plans by Day & Zimmerman, Inc., 1700 Sansom St., Phila., Pa. and Boswell Eng. Co., 6 Morningside Lane, Ridgefield, N. J., catapult arresting gear and high test facilities, $5,000,000; plans by Porter, Urquhart, McCreary & O'Brien, 415 Frelinghuysen Ave., Newark, catapult arresting gear and technical facilities, also traffic diversion strip, $1,600,000. Naval Air Station. $6,438,000 appropriated.

▲ **N. J., Neptune**—HIGH SCHOOL—Bd. Educ., Neptune, plans by Coffin, Coffin & Ronfeldt, 125 E. 46 St., New York, N. Y., high school. $1,500,000.

▲† **N. M., Alamogordo**—AIR BASE—U. S. Eng., Box 1538, Albuquerque, Holloman Air Force Base, operational and training facilities, maintenance facilities,

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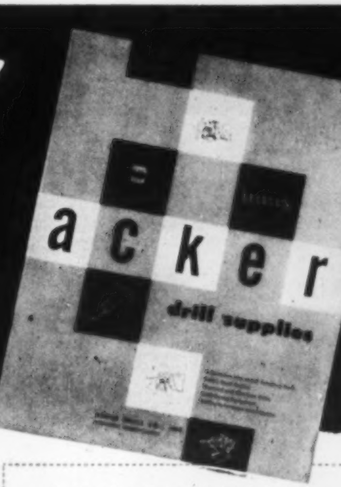

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research, development and test facilities, housing and community facilities. **$7,877,000** appropriated.

▲† **N. M., Albuquerque**—AIR BASE—U. S. Eng., Box 1538, Kirtland Air Force Base, operational and training facilities, maintenance facilities, research, development and test facilities. **$5,481,000** appropriated.

▲† **N. Y., Rome**—CLUB, etc.—U. S. Eng., 111 E. 16 St., New York, Zone 3, service club and hangar, **$100,000-$500,000,** Lockwood-Greene Assoc., 41 E. 42 St., New York, engrs.; hydrant refueling, **$1,000,000-$3,000,000,** Greenberg & Ames and W. H. McFarland, 303 Fourth Ave., New York, Zone 10, engrs., foregoing work at Griffiss Air Force Base. CD 8/22.

▲† **N. Y., Rome**—AIR BASE—U. S. Eng., 111 E. 16 St., New York, Zone 3, Griffiss Air Force Base, operational and training facilities, maintenance facilities, research, development and test facilities, supply facilities, housing and community facilities, utilities and ground imprvs. **$17,966,000** appropriated. CD 10/19.

▲† **N. Y., Westhampton Beach**—AIR BASE—U. S. Eng., 111 E. 16 St., New York, Zone 3, Suffolk County Air Force Base, operational and training facilities, maintenance facilities, housing and community facilities, utilities and ground imprvs. **$5,441,000** appropriated.

▲† **N. D., Grand Forks**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., Grand Forks Air Force Base, operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, utilities, ground imprvs. **$18,969,000** appropriated.

▲† **N. D., Minot**—AIR FORCE BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., operational and training, maintenance facilities, utilities and ground improvements, Minot Air Force Base, **$21,215,000** appropriated. CD 8/5/55.

▲† **O., Columbus**—AIR BASE—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., Lockbourne Air Force Base, operation and training facilities, maintenance facilities, housing and community facilities. **$4,952,000** appropriated. CD 7/18/55 and 8/18/55.

▲† **O., Dayton**—AIR BASE—U. S. Eng., 830 W. Broadway, Louisville, Ky., Wright-Patterson Air Force Base, operational and training facilities, maintenance facilities, research, development and test facilities, housing and community facilities, utilities and ground imprvs. **$17,138,000** appropriated. CD 9/27/51.

▲† **O., Youngstown**—AIRPORT—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., jet fighter base, incl. extend runway 1,500 ft.; 1,000 ft. paved overrun at each end; jet engine test cell; parachute shop; raise height of control tower and other facilities, Youngstown Municipal Airport. **$2,255,000** appropriated.

▲† **Okla., Altus**—AIR BASE—U. S. Eng., Box 61, Tulsa, Zone 2, Altus Air Force Base, housing, community facilities and utilities. **$1,003,000** appropriated.

† **Okla., Enid**—AIR BASE—U. S. Eng., Box 61, Tulsa, Zone 2, Vance Air Force Base, operational and training facilities. **$977,000** appropriated.

▲† **Okla., Oklahoma City**—AIR BASE—U. S. Eng., Box 61, Tulsa Zone 2, Tinker Air Force Base, operational and training facilities, hospital facilities, housing and community facilities. **$5,990,000** appropriated. CD 2/7/55.

▲† **Ore., Klamath Falls**—AIRPORT—P. Wks. Officer, 13th Naval Dist. 1611 W. Wheeler St., Seattle, Wash., operational and training, maintenance, housing and community facilities, utilities and ground improvements, Klamath Falls Municipal Airport, **$1,130,000** appropriated. CD 3/14/55.

▲† **Ore., Portland**—AIRPORT—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., operational and training, maintenance and supply facilities, utilities and ground improvements, Greater Portland, **$13,508,000** appropriated. CD 1/4/54.

▲† **Pa., Pittsburgh**—TRAINING CENTER—U. S. Eng., 2635 Abbottsford Rd., Phila., plans by Michael Baker Jr. Assoc., Rochester, 1 story, brick, concrete block and metal hangar, warehouse, admin. and classrooms, Air Force Reserve Training Center, Greater Pittsburgh Airport, Coraopolis. **$1,087,000** appropriated. CD 8/22/55.

† **S. D., Rapid City**—RUNWAY, HOUSING—U. S. Eng., 1709 Jackson St., Omaha, Neb., removal of a hill for runway extension, housing, etc., Ellsworth Air Force Base, **$943,000** appropriated. CD 10/26.

▲† **Tenn., Knoxville**—AIRPORT—U. S. Eng., 306 Federal Office Bldg., Nashville, McGhee-Tyson Airport, operational and training, maintenance facilities, administrative, housing and community facilities, **$2,054,000** appropriated.

▲† **Tex., Abilene**—AIRPORT IMPROVEMENT—U. S. Eng., 100 W. Vickery Blvd., Ft. Worth, improvements and expansion Abilene Air Force Base **$1,043,000** appropriated. CD 8/25/55.

▲† **Tex., Alice-Orange Grove**—AIRPORT IMPROVEMENT—Dpt. of Navy, Naval Air Station, Corpus Christi, Naval Auxiliary Landing improvements and expansion, **$2,242,000** appropriated.

▲† **Tex., Austin**—AIRPORT ENLARGING—U. S. Eng., Box 1229, Galveston, enlarging Bergstrom Field Air Force Base, **$15,938,000** appropriated. CD 9/11/53.

▲† **Tex., Bryan**—AIR FORCE BASE IMPROVEMENTS—U. S. Eng., Box 1600, Ft. Worth, improvements and expansion, Bryan Air Force Base. **$1,288,000** appropriated. CD 2/1/51.

▲† **Tex., Corpus Christi**—AIR FIELD—Bureau Yards & Docks, Dpt. Navy, Naval Air Station, Corpus Christi, Chase Field Naval Auxiliary Air Station imprvs., and expansion. **$2,247,000** appropriated.

† **Tex., El Paso**—AIR BASE—U. S. Eng., Box 1538, Albuquerque, N. M., Biggs Air Force Base, operational and training facilities, housing and community facilities. **$922,000** appropriated.

▲† **Tex., Ft. Worth**—AIRPORT IMPROVEMENT—U. S. Eng., Box 1600, improvements and expansion Carswell Air Force Base, **$2,438,000,** appropriated. CD 10/31/51.

† **Tex., Ft. Worth**—RUNWAY, etc.—U. S. Eng., 100 W. Vickery Blvd., runway, **$158,000;** taxiway, **$158,000;** hangar, **$375,000;** shop, **$300,000.** Ft. Worth Depot, **$1,285,000** appropriated.

† **Tex., Greenville**—AIRFIELD IMPRVS.—Dpt. Air Force, The Pentagon, N. W. Wash., D. C., Majors Airfield imprvs. **$440,000** appropriated.

▲† **Tex., Kingsville**—AIRPORT IMPROVEMENT—U. S. Govt., Dpt. of Navy, Naval Air Station, Corpus Christi, improvements, expansion at Naval Air Station, **$2,610,000** appropriated. CD 9/29.

▲† **Tex., Lackland Air Force Base**—HOSPITAL, FACILITIES—U. S. Eng., Box 1229, Galveston, plans by Associated Architects, 2506 Richton St., Houston, permanent hospital, incl. considerable outside underground utilities, and paving, dirt work, **$3,440,000** appropriated. CD 9/7/55; plans by Stone & Pitts, & Carter & Burgess, 1872 Calder St., Beaumont, archts.-engrs. design of operations AC&W & facilities, Lackland Air Force Base, **$5,000,000** appropriated. CD 9/14/51.

▲† **Tex., Laredo**—TEST SITE—U. S. Eng., Box 1229, Galveston, test site improvements and expan. Laredo Air Force Base Test Site, **$1,219,000** appropriated.

▲† **Tex., Lubbock**—AIRPORT REMODELING—U. S. Eng., Box 1638, Albuquerque, N. M., remodeling and expansion Reese Air Force Base, **$4,063,000** appropriated.

▲† **Tex., San Angelo**—AIRPORT IMPROVEMENT—U. S. Eng., Box 1229, Galveston, improvements and expansion. Goodfellow Air Force Base, **$8,804,000** appropriated.

Tex., San Marcos—AIRBASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, maintenance facilities, Edward Gary Air Force Base, **$783,000.** CD 2/15/54.

▲† **Tex., Sherman**—AIRPORT REMODELING—U. S. Dist., Eng., Box 61, Tulsa 2, Okla., remodeling and expansion. Perrin Air Force Base, **$21,260,000** appropriated. CD 10/7.

▲† **Tex., Waco**—AIRPORT IMPROVEMENT—U. S. Eng., 1127 T & P Bldg., Ft. Worth, improvements and expansion Jas. Connally Air Force Base, **$8,804,000** appropriated. CD 8/6/51.

▲† **Tex., Wichita Falls**—AIR BASE—U. S. Govt., c/o Shepherd Air Force Base, new AF hospital, **$6,000,000;** Jet Bomber facilities, incl. runways, taxiways, hangars, shops, etc., for B-52 Jet Bombers of the Strategic Air Command. **$18,433,000.** Included in military bill just passed by Senate, **$24,433,000** appropriated. CD 3/14/51.

▲† **Vt., Winooski**—AIR BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Ethan Allen Air Force Base, operational and training facilities, maintenance facilities, supply facilities. **$4,211,000** appropriated.

† **Va., Chincoteague**—NAVAL AIR STATION—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, Naval Air Station, aircraft maintenance facilities. **$170,000** appropriated.

▲† **Va., Langley Air Force Base**—AIR BASE—U. S. Eng., foot of Front St., Norfolk, Zone 1, Langley Air Force Base, operational and training facilities. **$2,613,000** appropriated. CD 9/11/52.

Wis., Green Bay—AIRPORT—Brown Co., airport exten. **$325,000.** Foth & Porath, Inc., 214 A. N. Adams St., consult. engr.

▲† **Utah, Hill Air Force Base**—AIR BASE—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., Hill Air Force Base, maintenance facilities, housing, community facilities, utilities and ground imprvs. **$1,339,000** appropriated.

▲† **Wash., Everett**—AIR BASE—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, operational and training facilities, maintenance facilities, supply facilities, Paine Air Force Base, **$4,127,000** appropriated. CD 8/12/55.

▲† **Wash., Spokane**—AIR FIELD—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, operational and training facilities, maintenance facilities and housing and community facilities and family housing, Geiger Field, **$2,827,000** appropriated. CD 7/8/55.

▲† **Wash., Tacoma**—AIR BASE—Purch. & Contg. Officer, McChord Air Force Base, Tacoma, operational and training facilities, maintenance facilities, McChord Air Force Base. **$1,514,000** appropriated.

▲† **Wis., Madison**—AIR FIELD—U. S. Eng., 428 Federal Bldg., Milwaukee, operational and training facilities, maintenance facilities, housing and community facilities, Truax Field, **$4,876,000** appropriated. CD 3/27/51.

▲† **Wyo., Cheyenne**—DORMITORY, etc.—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., airmen's dormitories, **$1,000,000-$1,500,000;** service club, **$400,000-$500,000.** Warren Air Force Base. $1,654,000 (appropriated). Bids in August or September. CD 9/21/51.

PUBLIC BUILDINGS

Ariz., Flagstaff—DORMITORY—State of Arizona, Phoenix, men's dormitory, Arizona State College. **$500,000.**

▲ **Calif., Anaheim**—SCHOOLS—Anaheim Union High School Dist., **$6,000,000** bond election Oct. 23, 2 high schools and 4 junior high school. CD 2-8.

Calif., Azusa—SCHOOL—Gladstone School Dist. plans by Balch, Bryan, Perkins & Hutchason, 2933 Rowena Ave., Los Angeles, Citrus Ave. School, **$464,000.**

Calif., Burlingame—SCHOOL—Burlingame Elem. School Dist., c/o Supt., 701 Paloma Ave., plans by Hertzka & Knowles, 85 Post St., San Francisco, bond election Oct. 9, constr. elementary school, on Mills Estate Sub-Div. site, **$475,000.**

▲ **Calif., Hayward**—SCHOOL—Hayward Union High School Dist., 22300 Foothill Blvd., Cherryland High School. **$3,419,410.** CD 4/30.

Calif., Lompoc—GYMNASIUM—Lompoc Union High School Dist., plans by Pierre Claeyssens, 1941 Wilshire Blvd., West Los Angeles, rein.-con. gymnasium, bleachers, **$350,000.**

▲ **Calif., Long Beach**—LIBRARIES—City, City Hall, main library, Rancho Los Cerritos. **$5,500,000.** CD 4/15/53, under Sewers, Waste Disposal.

Calif., Long Beach—SHOP—City, City Hall, central service maintenance shops. **$595,000.** CD 4/10/47.

▲ **Calif., Los Angeles**—JUVENILE DETENTION—Bd. Supervs. Los Angeles Co., Hall of Records, **$15,485,000** bond election Nov. 6, juvenile detention and placement facilities.

Calif., Los Angeles—CAMP—Los Angeles Co., Hall Records, plans by Raphall Nicolois, 6239 Wilsh Blvd., Marck Canyon boy's camp, **$756,290.**

Calif., Los Angeles—GARAGE—Los Angeles Co., Hall Records, plans by Charles O. Matcham, 1258 W. St., 3 story garage, **$786,145.**

Calif., Los Angeles—LAKEWOOD CIVIC CENTER—Lo Angeles Co., Hall of Records, plans by James R. Frie 708 Kress Bldg., Long Beach, Lakewood Civic Cent Clark St. between Candlewood and Del Amo Bl **$776,730.**

Calif., Los Angeles—SCHOOL—Los Angeles Bd. Edu 1425 S. San Pedro St., plans by Weldon J. Fult 1010 Wilshire Blvd., Santa Monica, frame, stu Towne Ave. School, Gardena, **$384,856.** CD 4/8/

▲ **Calif., Norwalk**—SCHOOLS—Norwalk School Dist. 12152 E. Walnut St., plans by Kistner, Wright Wright, 1125 W. 6th St., Los Angeles, Alondra Proje 22, **$500,000;** La Mirada No. 9, **$500,000.** CD 6/

Calif., Parlier—SCHOOL—Parlier Unified School Dis c/o Supt., P. O. Box 38, Parlier Elementary Scho No. 3, **$385,048.**

Calif., Puente—SCHOOL—Bassett School Dist., 5 N. Vineland Ave., plans by Lee B. Kline, 1741 Silve lake Blvd., Los Angeles, Edgewood Elementary Schoo **$850,000.**

▲ **Calif., Redwood City**—HOSPITAL—Sequoia Hospit Dist., Whipple Ave. and Alameda de las Pulg Redwood City, **$2,925,000** bond election Oct. hospital addn. Stone, Mulloy, Marraccini & Patters 619 California St., San Francisco, archts.

Calif., San Bruno—FIREHOUSE—San Bruno Fire Com 720 San Mateo Ave., constr. central firehouse a two sub-stations. **$386,000.** CD 2/19/46.

▲ **Calif., San Diego**—SCHOOLS—San Diego Uni School Dist., 825 Union Ave., **$27,000,000,** bo election on Nov. 6, for primary and secondary sch and Junior College construction. CD 5/1/53.

▲ **Calif., San Francisco**—HOUSING—San Franci Housing Auth., 440 Turk St., revised plans Ward & Boles, 215 Leidesdorff St., San Francis 128 Ping Yuen Housing addn., Pacific St. **$2,500,00** to go ahead in 1957.

Calif., Wasco—SCHOOL, etc.—Wasco Union High Sch Dist., 7th and Palm Ave., plans by Stuhr & Hic 924 Truxtun Ave., Bakerfield, 13 classroom bldg. a agricultural shop bldg., **$300,000.** CD 2/10.

Calif., West Covina—COUNTY BLDG.—Los Angeles Co., Hall of Records, Los Angeles, plans by Raphael Nicolois, 6239 Wilshire Blvd., Los Angeles, West Covina county bldg. **$698,200.**

▲ **Colo., Boulder**—FAMILY HOUSING UNITS—University of Colo., c/o D. W. Bray, bus. mgr., Boulder, plans by J. W. Nooecker, Rte. 1, Box 145-B, Lafayette, 116 family housing units. **$1,025,000.** CD 2/21.

Colo., Colorado Springs—SCHOOL—El Paso County School Dist. No. 3, C. A. Foster, treas. 701 Hackberry Dr., Security Village, plans by Carlisle B. Guy, Mining Exch. Bldg., Colorado Springs, Widefield School addn. **$474,000.** CD 3/25/55.

Conn., Madison—SCHOOL—Town, Town Hall, plans by Carleton Granbery, Jr., Old Quarry, Leete's Island, elementary school, **$350,000.** Perkins & Will, 309 W. Jackson St., Chicago, Ill., consult. engrs.

Ill., Du Quoin—HOUSING—Du Quoin Public Housing Auth., constr. 50-unit public housing. **$704,386.**

▲ **Ill., Herrin**—HOUSING—Herrin Housing Auth., constr. 100 housing units. **$1,172,442.**

▲ **Ill., Joliet**—HOUSING—Joliet Housing Auth., Joliet, 112 housing units. **$1,704,484.** CD 10/12/50.

▲ **Iowa, Waterloo**—COUNTY, CITY—City, City Hall, and Black Hawk Co., County Bldg., Waterloo, joint city-county bldg. **$2,265,000.**

▲ **Kan., Fort Kiley**—BUILDINGS, etc.—U. S. Eng., Federal Office Bldg., Kansas City, Mo., regimental headquarters bldg., Em barracks; addnl. water supply; regimental gymnasium; regimental chapel; motor park facilities; motor repair shops; regimental park hardstand; bachelor officers' quarters, nurses' facilities; theater. **$1,519,000,** appropriated. CD 9/12/55.

▲ **Ky., Bardstown**—SCHOOLS—Bardstown Bd. Educ., 5th and Beal Sts., plans by Gregg, McCullock & Bickel, 1321 Heyburn bldg., Louisville, brick, rein.-con. high and elementary school, incl. auditorium, cafeteria, etc. **$1,500,000.**

(Continued on page 153)

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This phenomenal growth in the use of USS High Strength Steels is the result of an ever-increasing recognition of their advantages. Bridge engineers have found in steels like USS MAN-TEN and USS TRI-TEN "E" *superior* materials of construction with which they can (1) obtain greater strength with no increase in weight, (2) reduce weight without any sacrifice in strength, (3) insure greater durability, and (4) frequently reduce costs as well.

Here are some of the prominent bridges which have benefited by the use of USS High Strength Steel:

USS MAN-TEN STEEL

Ohio River Bridge, Wheeling, W. Va.	2,500 tons
Maumee River Bridge, Toledo, Ohio	1,913 tons
Delaware River Turnpike Bridge	11,070 tons
Red River Bridge, Shreveport, La.	2,000 tons
St. Charles Bridge, St. Charles, Mo.	3,230 tons
Penn-Lincoln Parkway Ramp, Pittsburgh, Pa.	2,300 tons
Pass Manchac Bridge, Pontchatoula, La.	1,360 tons
Inner Belt Freeway Bridge, Cleveland, Ohio	4,800 tons
Canal Bridge, Orleans Parish, La.	1,635 tons

USS TRI-TEN "E" STEEL

Columbia River Bridge, Umatilla, Ore.	1,864 tons
Paseo Bridge, Kansas City, Mo.	3,759 tons
Ohio River Bridge, Shawneetown, Ill.	2,295 tons
Missouri River Bridge, Jefferson City, Mo.	1,692 tons
Kansas Turnpike Bridge	1,800 tons
Missouri River Bridge, Kansas City, Mo.	1,525 tons

We think this list, though far from complete, speaks for itself. Significant, too, is the fact that USS High Strength Steels are being specified for many of the major bridges projected for the immediate future.

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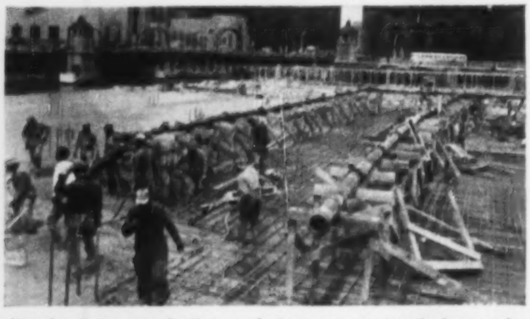
A Rex 200 Double Pumpcrete located on the lower street level receives concrete chuted down from a Rex 34E Dual Paver (not shown) located on the upper street level.



Here the placing crew distributes and vibrates concrete into the forms at the end of the pipeline. As work progresses, pipe sections are removed. Note second pipe already in place to pour the next section.

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CONSTRUCTION **REX** MACHINERY ®

CHAIN BELT COMPANY

(Continued from page 148)

▲ La., **Natchitoches**—DORMITORIES—Northwestern State College, c/o G. T. Walker, dean of Admin., Natchitoches, plans by Samuel G. Werner & Assoc., Commerce Natl. Bank Bldg., Shreveport, mens dormitory and womens' dormitory. **$1,000,000**. CD 1/4/55.

▲ La., **Ruston** — DORMITORIES, etc. — State Bldg. Auth., State Capitol, Baton Rouge, mens dormitory and womens' dormitory, **$1,575,000**. masonry student union bldg. **$750,000**. Louisiana Polytechnic Institute.

Md., **Towson**—SCHOOL—Baltimore Co. Bd. Educ., Aigburth Rd., plans by Hopkins, Pfeifer & Fenhagen, 10 E. Mulberry St., Baltimore, Zone 2, 2 story, brick, concrete, steel school, Sulphur Rd., Arbutus, **$750,000**. V. R. P. Saxe, 1701 St. Paul St., Baltimore, Zone 2, struct. engr. Jas. Posey, 10 E. Pleasant St., Baltimore, Zone 2, mech. engr. CD 8/16.

Mass., **East Hingham**—TOWN HALL—Town, East Hingham Elementary School Bldg. Comn., "E" St., plans by Hugh Stubbins Assoc., 78 Mt. Auburn St., Cambridge, town hall. **$500,000**. CD 4/4.

Mass., **Marlboro**—SCHOOL—City, Supt. Schools, High School, plans by The Archts. Collaborative, 96 Mt. Auburn St., Cambridge, elementary school, Horse Pond Rd., **$375,000**. Goldberg, LeMessurier Assoc., 669 Boylston St., Boston, struct. engrs. Thomas Worcester, Inc., 85 State St., Boston, mech. engr.

▲ Mich., **Battle Creek**—SCHOOL—City, Bd. Educ., plans by Lewis J. Sarvis, 258 Champion St., Junior High School, **$1,750,000**. CD 4/30/51.

▲ Mich., **Flint**—HOSPITAL—City, Harry K. Cull, clk., voted bonds, Hurley Hospital completion **$1,500,000**. CD 7/9.

▲ Mich., **Midland**—SCHOOL—City, Bd. Educ., Midland, voted **$3,100,000** bonds, 2 elementary schools, 6 schools addns. CD 7/17.

Minn., **Alden**—SCHOOL—Bd. Educ., W. B. Hawker, clk., voted $750,000 bonds Aug. 16, school addns., $700,-000. Hammel & Green, 1932½ University Ave., St. Paul, archts. CD 7/26.

Minn., **Rochester**—COURTHOUSE—Olmsted Co., Frances L. Underleak, and $999,000. bond election Sept. 11, court house. D. M. Robbins & Assoc., 128 Miracle Office Bldg., archts. **$900,000**. CD 11/30.

▲ Minn., **Silver Bay**—SCHOOL—Bd. Educ. W. H. Norlen, clk., plans by Bissell & Belair, 1111 Nicollet Ave., Minneapolis, high school addn. **$2,000,000**.

Mo., **West Plains**—SCHOOL—School Dist., Bd. Educ., voted **$405,000** bonds, school.

N. J., **Bloomingdale**—SCHOOL—Bd. Educ., Borough of Bloomingdale, plans by Alfonso Alvarez, 243 Lorain Ave., Upper Montclair, elementary school addn. **$350,000**.

N. J., **Caldwell**—SCHOOL—Bd. Educ., Caldwell Twp., plans by Neil Greydanus, 157 Cedar Ave., Hawthorne, 7 room wing to west side of new school bldg. **$345,000**.

N. J., **Camden**—SCHOOLS—Bd. Educ., City Hall, plans by Bellante & Clauss, 1810 S. Rittenhouse Sq., Phila., Pa., Woodrow Wilson High School alterations, addns. **$344,000**; Camden Senior High School alterations, addns. **$344,000**.

N. J., **Newark**—ADMINISTRATION—Newark Housing Auth., 57 Sussex St., plans by Kruger & Fava, 11 Hill St., administration bldg., Springfield Ave. between Hunterdon St. and Morris Ave. **$500,000**.

N. J., **Paterson**—SERVICE—Bd. Freeholders Passaic Co., Court House, plans by Neil Greydanus, 157 Cedar Ave., Hawthorne, addnl. renovation of county service bldg., Pennsylvania Ave. **$450,000**. Bids in about 6 weeks.

† N. M., **Sacramento**—HOUSING—U. S. Eng., Box 1538, Albuquerque, family housing, Sacramento Peak Observatory. **$153,000**.

N. Y., **Nanuet**—SCHOOL—Bd. Educ. plans by Ralph E. Hacker, 854 River Rd., New Milford, Junior High School, **$400,000**.

O., **Austintown**—SCHOOLS—Austintown School Bd. Educ., bond election Nov. 6, schools. **$803,000**.

▲ O., **Berea**—SCHOOL—Berea School Bd., $3,000,000 capital improvement levy Nov. 6 election for 5 yrs. to provide approx. $350,000 per year for 1 school each year. **$1,750,000**.

▲ O., **Fairborn**—SCHOOLS—Bd. Educ., **$1,000,000** bond election Nov. 6 addn. to high school, addn. to Five Points Grade School.

O., **Grafton**—SCHOOL—Midview School Dist., Fred Daniel, supt., bond election Nov. 6, new 8 grade elementary school. **$493,000**.

O., **Toledo**—DORMITORIES, etc.—City, City Hall, dormitories, craft shop, auditorium, compound area for recreation and women's bldg., workhouse, at Whitehouse. **$726,500**.

O., **Windham**—SCHOOL—Windham School Dist. bond election Nov. 6, new grade school. **$450,000**.

▲† Okla., **Fort Sill**—TRAINING CENTER, etc.—U. S. Eng., Box 61, Tulsa 2, classrooms addns. for guided missile training center, **$2,600,000**; Communications and Electronics Bldg. Laboratory facilities, **$1,563,000**. $4,173,000 appropriated. CD 8/9/55.

S. D., **Mitchell**—SCHOOL—Bd. of Educ. Mitchell, plans by W. J. Dixon, Mitchell high school, **$400,000**.

▲ Tenn., **Nashville**—DORMITORY—Tennessee Mental Health Dept., plans by Taylor & Crabtree, 1805 Hayes St., dormitory to be used for children with severe brain injuries at Clover Bottom Home for Feeble minded, **$1,000,000**. CD 9/28/55.

Tex., **Athens**—HOSPITAL—Henderson Co. plans by Wyatt C. Hedrick, consult. engr.-archt., Box 5055, Dallas, hospital alterations, addns. **$350,000**.

▲† Tex., **El Paso**—IMPROVEMENTS and EXPANSION—U. S. Dist. Eng., Box 1538, Albuquerque, N. M., im-

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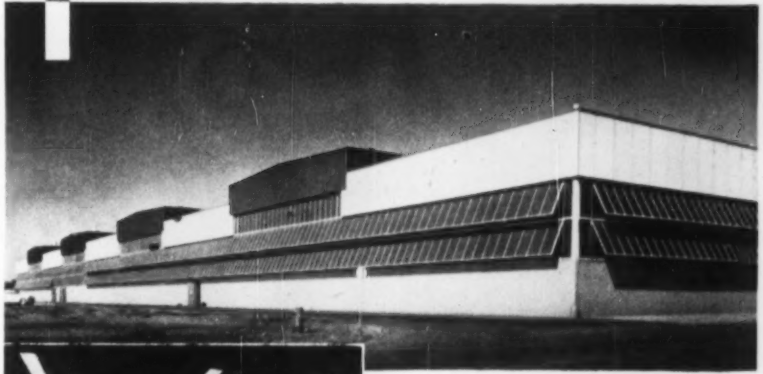

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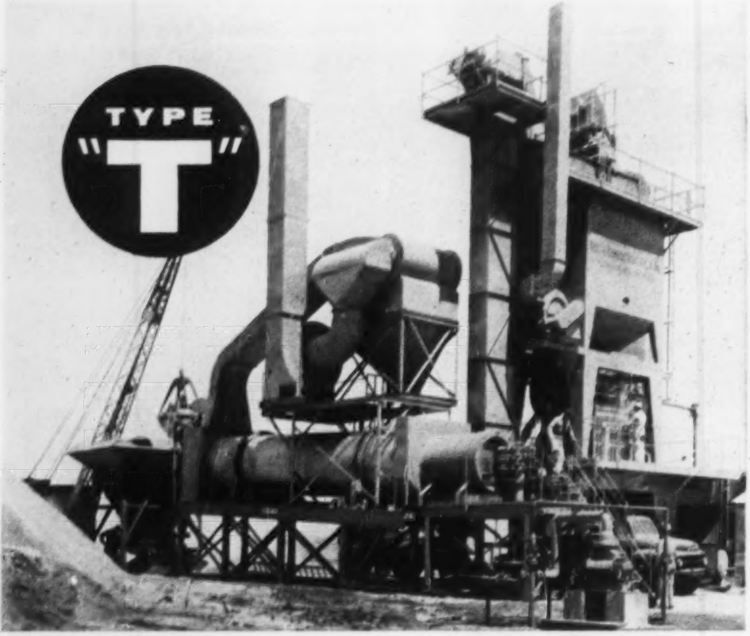

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provements and expansion for Ft. Bliss, $5,301,000, appropriated. CD 9/29.

▲† Tex., **Fort Hood**—FACILITIES—U. S. Eng., Box 1600, Ft. Worth, expansion of facilities at Army Camp, $2,457,000 appropriated. CD 4/15/55.

Tex., **Lewisville**—SCHOOL—Lewisville, Ind. School Dist., plans by Stanley Brown, 4012 Cedar Springs, Dallas, elementary school. $350,000.

▲ Tex., **Victoria**—HOUSING—Victoria Housing Auth., Victoria, plans by MacKie & Kamrath, 22713 Ferndale St., Houston, Zone 6, 500 units family housing $5,750,000. CD 5/17/50.

Vt., **Bethel**—SCHOOL—Town, School Dpt., plans by Holmer & Cole, 3 Central St., Woodstock, high school north end of village west of Rte. 12, $350,000.

▲ Wash., **Tacoma**—WING—Pierce Co., Court House, and City, City Hall, law enforcement wing to County-City Bldg. $2,700,000.

▲† W. Va., **Parkersburg**—COURT HOUSE, etc.—General Services Admin., Public Bldgs. Service, General Services Bldg., Wash. 24, D. C., plans by Robert J. Bennett, Mononganela Bldg., Morgantown, court house and federal office bldg. for use of U. S. Dist. Court of Northern Dist. of W. Va. and Justice and Treasury Dpts. $3,045,000. CD 8/10/55.

▲ Wis., **Sheboygan**—SCHOOLS—Bd. Educ., Sheboygan, elementary school $660,875 Junior High School $1,500,995.

Alta., **Edmonton**—OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, c/o owner, chf. archt., 4 story, federal gov't. office bldg. on 60x140 ft. site, on 103 St. $600,000.

Ont., **Cobourg**—HOSPITAL—Cobourg Hospital Bd., Cobourg, plans by Drever & Smith, 91 Brock St., Kingston, hospital, Chapel St. $775,000.

COMMERCIAL BUILDINGS

▲ Calif., **Fort Ord**—HOUSING—U. S. Eng., 180 New Montgomery St., San Francisco, construct and finance, 189-units of Capehart Housing. $2,457,000.

▲ Calif., **Fresno**—BANK—First Western Bank, c/o manager, 1522 Fulton St., plans by Walter Wagner, 1830 Van Ness Blvd., 4,800 sq. ft., 3 story, rein.-con. bank Fulton and Calaveres Sts. $1,000,000. CD 7/15.

Calif., **Half Moon Bay**—SHOPPING CENTER—L. A. Oglesby, 1876 9th Ave., San Francisco, shopping center, Coast Highway. $500,000.

▲ Calif., **Los Gates**—APARTMENTS—Owner c/o Norris Gaddes, archt., 632 Grand Ave., Oakland, 6 story 102-unit U-shaped apartments, $1,000,000.

▲ Calif., **Los Angeles**—DWELLINGS—Ponty West Valley Homes, 548½ N. Hollywood Way, Burbank, plans by Paul J. Duncan, 13310 Moor Park Ave., Sherman Oaks and Gilbert L. Lelong, 3162 Los Feliz Blvd., Los Angeles, 179 frame and stucco dwellings, Canoga Park, $1,800,000.

▲ Calif., **Newark**—SHOPPING CENTER—R. T. Nahas Enterprises, 160 Castro Village, Castro Valley, 32-store shopping center, Thornton Ave., $1,500,000.

Calif., **Palmdale**—DWELLINGS—Area Developing Co., 116 S. Stoneman, Alhambra, plans by W. M. Bray, 962 La Cienega, Los Angeles, 58 frame, stucco dwellings, Landon Ave. $462,000.

Calif., **Palm Springs**—DWELLINGS—Talbert Constr. Co., c/o Oscar Liff, archt., 8282 Sunset Blvd., Los Angeles, 50 frame and stucco dwellings, $875,000.

Calif., **Santa Monica**—HOSPITAL—Lutheran Hospital Society of Southern Calif., c/o Walker, Kalionzer & Klongerman, archts., 488 S. San Vicente St., Los Angeles, diagnostic & treatment center, Santa Monica Hospital addn., $471,000.

▲ Calif., **Stockton**—HOTEL—Urban Development Corp., c/o Bruce E. Heiser, archt., 251 Post St., San Francisco, hotel. $4,000,000.

▲ Calif., **Stockton**—MOTEL—Urban Development Corp., c/o Bruce E. Heiser, archt., 251 Post St., San Francisco, motel. $1,000,000.

▲ Calif., **Van Nuys**—DWELLINGS—Queensbury Homes, Inc., 12700 Foothill Blvd., San Fernando, 112 dwellings, 9,200-9,800 sq. ft., Van Nuys area. $1,067,000.

Colo., **Colorado Springs**—SHOPPING CENTER—Owner c/o Willis Agency, 528 S. Nevada Ave., shopping center 65,000 sq. ft. in Audubon Heights, bordered by Union Blvd., Van Buren, Jackson and Robbin drive. $750,000.

▲ Conn., **Greenwich**—BUSINESS DEVELOPMENT—Owner, c/o Edward I. Arnow, 60 E. 42 St., New York, N. Y., railroad station area business development. $8,000,000.

▲ Conn., **Hartford**—SCHOOL—Archdiocese of Hartford, Chancery Office, 140 Farmington Ave., Hartford Roman Catholic High School, southwest section, New Britain Ave. $1,000,000.

▲ Conn., **Hartford**—COLLEGE—Hillyer College, 315 Hudson St., plans by Moore & Salisbury, 1007 Farmington Ave., West Hartford, college bldg. Bloomfield Ave. $1,000,000. Marchant & Minges, 1007 Farmington Ave., West Hartford, consult. engrs. CD 7/18.

Conn., **Old Greenwich**—SHOPPING CENTER—First Stamford Corp., 1122 Main St., Stamford, 40,000 sq. ft. shopping center, Post Rd. $400,000.

Conn., **South Woodstock**—DORMITORY, etc.—Annhurst College, Daughters of the Holy Ghost, plans by O. E. Nault & Sons, 48 Hamilton St., Worcester, Mass.

(Continued on page 156)

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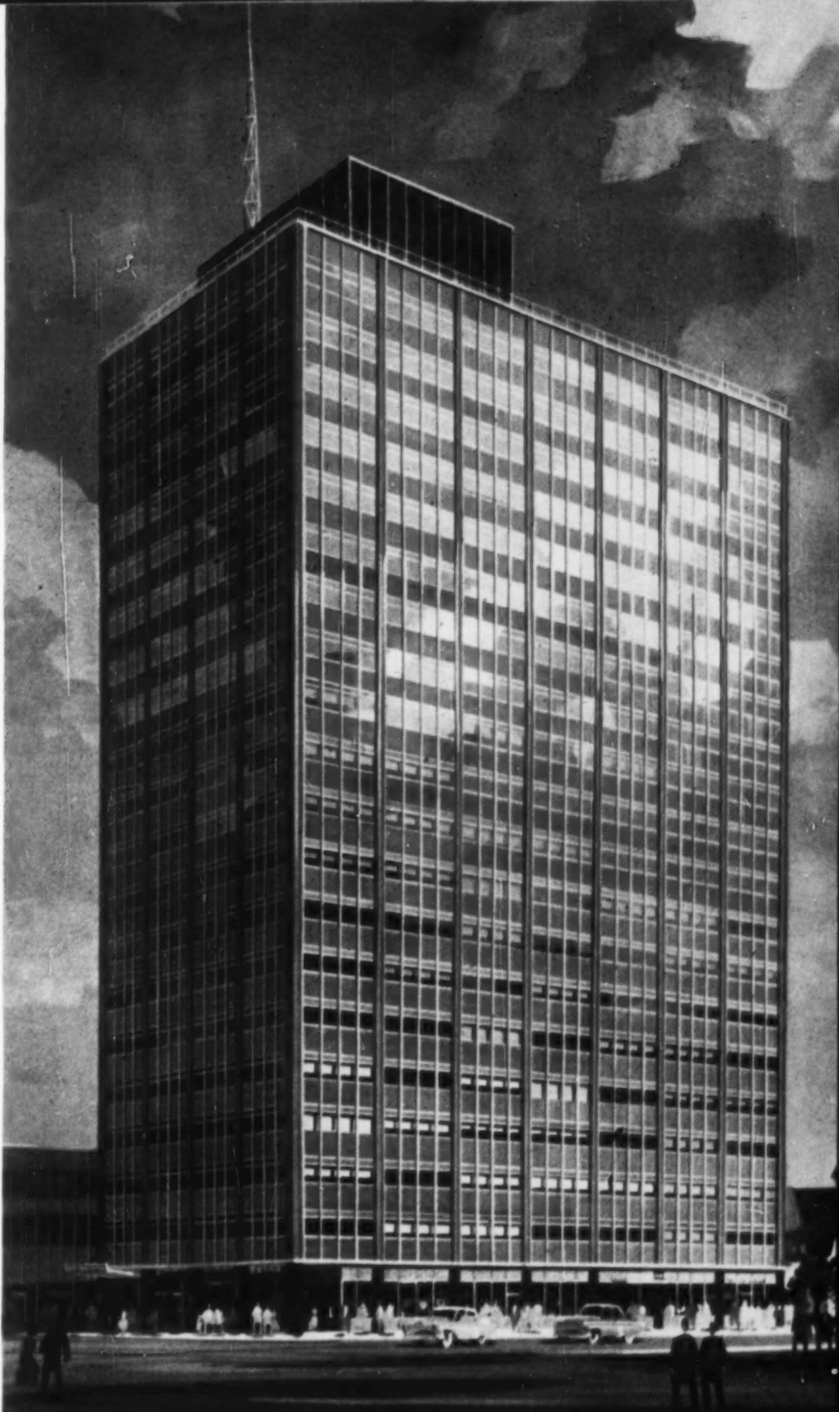

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(Continued from page 154)

brick dormitory, 140 persons-Chapel (200) Lounge and Library. **$345,000**. Bids latter part September.

▲ **Ill., Wilmette**—HIGH SCHOOL, etc.—Sisters of Regina Dominican, Adrian, Mich. Plans by Barry & Kay, 53 W. Jackson Blvd., Chicago, 3 story, brick, stone, concrete, steel high school, chapel and convent, Locust and Roman Aves. **$2,500,000**.

▲ **Ind., Indianapolis**—SYNOGOGUE—Congregation, Bethel-Zedeck, 3537 Ruckle St., plans by McGuire & Shook, 1400 Fletcher Trust Bldg., 2 story, masonry, struc. steel, concrete, synogogue, community room, office, chapel and school. **$1,600,000**. J. M. Rotz, superv., 1005 Merchants Bank Bldg., Indianapolis, and Wm. H. Junker-Willard C. Pister, 2910 Woodburn, Cincinnati, O., consult. engrs. CD,12/29.

▲ **Kan., Fort Riley**—HOUSING—U. S. Eng., Federal Office Bldg., Kansas City, Mo., plans by Hare & Hare, 114 W. 10 St., Kansas City, Mo., and Glen Eidson, assoc. archt., 11 E. Gregory St., Kansas City, Mo., construct and finance 433 housing units, **$7,000,000.**

▲ **Ky., Owensboro**—SHOPPING CENTER—South Owensboro Shopping Center, Owensboro amusement park, parking facilities, shopping center. **$1,000,000**. Johnson Deep & Quisenberry, Inc., 915 Frederica St., consult. engr.

La., New Orleans—DORMITORIES—St. Mary's Dominican College, c/o Sister Mary Louise, vice pres., plans by Jack Kessels, 637 Pere Antoine Alley, 2 story, brick women's dormitory and faculty dormitory, 7214 St. Charles St. **$600,000**.

La., New Orleans—OFFICE—M. Wayne Stoffle, (owner and archt.), 730 Gavier St., 4 story, 30,000 sq. ft. brick, marble physicians office bldg. across from the Baptist Hospital. **$500,000**.

Mass., Ayer—HOSPITAL—Community Memorial Hospital, Highland Ave., Ayer, plans by Kendall Taylor & Co., Inc., 12 Norfolk St., Cambridge, hospital addn., Highland Ave. **$350,000**.

Mass., Cambridge—DORMITORY—Lesley College, 29 Everett St., dormitory, **$540,000**.

▲ **Minn., Bloomington (P. O. Minneapolis)**—BUILDING—J. Carnes, 9133 Poplar Bridge Rd.; "Hobby Court" Bldg., east of Penn Ave. S. between 80 and 81 Sts., **$1,000,000**.

▲ **Neb., Lincoln**—HOUSING—Procurement Office, Lincoln Air Force Base, Lincoln, construct and finance, 600 addnl. housing units (Capehart) Lincoln Air Force Base. **$8,000,000**.

N. J., Mays Landing—RECTORY, etc.—R. C. Diocese of Camden, 721 Cooper St., rectory, convent and school. **$344,000**.

N. J., Princeton—Y.M. AND Y.W.C.A. BLDG.—Y.M.C.A. of Princeton, 120 John St., N. J. "Y" Council and National "Y" Council, 291 Broadway, New York, N. Y., plans by Morgan & Kassler, 18 Nassau St., Y.M. & Y.W. Bldg. **$344,000**. Charles S. Leopold, 213 S. Broad St., Phila., Pa., consult. engr. CD. 9/15/53.

N. Y., Huntington—OFFICE—All State Insurance Co., 500 Westchester, Ave., White Plains, plans by Fordyce & Hamby, 70 W. 40 St., New York, 2 story office bldg. 26 acre tract at Northern State Parkway and Walt Whitman Rd., **$400,000**. CD 5/24.

▲ **N. Y., New York**—APARTMENT—Henry Sanoff, 205 South Second St., Brooklyn, Zone 11, plans by S. J. Kessler & Sons, 551 Fifth Ave., Zone 17, apartment, 135 E. 33 St. **$1,458,000**.

N. Y., New York—OFFICE, etc.—Tudor City Twelfth Unit, Inc., 551 Fifth Ave., Zone 17, office and store, 768 74 Second Ave. **$420,000**. Victor Mayper, 110 W. 40 St., Zone 36, consult. engr.

▲ **N. Y., West Seneca**—APARTMENT—Webb & Knapp, 383 Madison Ave., New York, 300 unit garden apartment on 16 acre, Seneca St. property on Buffalo West Seneca line. **$2,500,000**.

Pa., Doylestown—SCHOOL—Our Lady of Mt. Carmel, R. C. Church, E. State St., plans by Stephen Hazzard, Warrington, 1 story, part bsmnt., 56x84 ft., 70x86 ft., brick, steel school addn., **$350,000**.

Pa., Phila.—DRIVE-IN BANK—Phila. National Bank, 1416 Chestnut St., plans by James S. Hatfield, 12 S. 12 St., drive-in bank bldg. and parking area, Erie and Castor Aves. **$344,000**. Horace Nicholson, 215 S. Broad St., consult. engr. CD 9/4/53.

▲ **Pa., Phila.**—MEDICAL CENTER—Juniata Park Medical Center Corp. and Hospital, 1100 E. Lycoming Ave., plans by G. Harold Murphy, 1621 Sellers St., 2 story, hospital center and 60-bed hospital. **$1,000,000**. CD 8/8.

Pa., Trooper—SHOPPING CENTER—John J. McLaughlin, 352 E Main St., Norristown, plans by Edwin Grant Rorke, 5 E. Airy St., Norristown, 2 story brick, stone 30,000 sq. ft. shopping center, **$350,000**.

Pa., Yardley—SHOPPING CENTER—Yardley Shopping Plaza, 9 S. Main St., plans by Frederick W. Lantz, 82 N. Penna Ave., Norristown, shopping center, incl. 20 stores, **$344,000**.

Tex., Abilene—CHURCH—Elmwood West Methodist Church, Congregation, Abilene, plans by Tucker & Lindberg, 161½ Cedar St., church. **$350,000**.

Tex., Brownwood—DORMITORY—Howard-Payne College, c/o J. H. Shelton, dir Prop. & Dev., plans by Herbert Brasher & Assoc., 1626 13th St., Lubbock, (Tex-41-CH-37) 25,000 sq. ft. fl. space men's dormitory. **$605,000**. CD 5/22.

▲ **Tex., College Station**—SHOPPING CENTER—Shopping Center, Inc., c/o Chamber of Commerce, shopping center, 14 acre site. **$1,000,000**.

Tex., Dallas—DWELLINGS—W. Robert Browne, Builder, 1300 Kingsley Rd., 30 dwellings. **$358,750**.

Tex., Dallas—DWELLINGS—The General Housing Co., 2682 Wasina St., 32 dwellings, **$360,000**; 29 dwellings, **$346,625**, in area Valwood Park.

Tex., Dallas—DWELLINGS—Plymouth Park Homes, Irving, 28 dwellings. **$353,335**.

Tex., Dallas—DWELLINGS—Gordon L. Wright & Assoc., 711 N. Pearl St., 16 masonry type dwellings, **$355,000**; 22 dwellings, **$365,500**.

Tex., Fort Worth—SHOPPING CENTER—Owner, c/o A. B. Withers, archts., 5329 W. Freeway St., will not construct shopping center. **$400,000**. Project abandoned. CD 5/21.

Tex., Duncanville—DWELLINGS—T. K. Irwin & Ralph B. Leonard & Assoc., c/o Marc. Commerce bldg., Dallas, 30 dwellings, **$369,400**; 26 dwellings, **$355,500**, in "Red Bird Village".

▲ **Tex., Freeport**—DWELLINGS—J. O. Berry, builder, 35 dwellings, **$350,000**; 26 dwellings, **$364,000**; 28 dwellings, **$361,500**.

Tex., Houston—DWELLINGS—Brazosport Builders, c/o Howard Terry, c/o 5519 Lawndale St., 18 dwellings, **$366,225**; 22 dwellings, **$371,000**, near Freeway Manor.

▲ **Tex., Houston**—DWELLINGS—Edgebrook Co., c/o Lewis O. Tyra & Assoc., 5519 Lawndale, 18 dwellings, **$360,000**; 19 dwellings, **$379,500**; 22 dwellings, **$352,750**; 30 dwellings, **$369,000**.

▲ **Tex., Houston**—DWELLINGS—R. V. King, Contractor, 12202 Hempstead, 31 dwellings, **$360,750**; 28 dwellings, **$355,000**; 26 dwellings, **$345.000**; 35 dwellings, **$368,100**; 38 dwellings, **$373,000**; 40 dwellings, **$381,500**, in Lang Forest, subdivision where 400 homes projected.

Tex., Houston—DWELLINGS—Leo E. O'Neal, 3908 Main St., 12 masonry dwelling, **$360,000**; 38 frame and masonry dwellings, in Braeburn Glen, **$430,000**.

Tex., Houston—DWELLINGS—Ottosen Builders, 1719 Sunset Blvd., 21 frame and masonry dwellings in Freeway Manor Sec. No. 7, **$355,500**.

▲ **Tex., Houston**—DWELLINGS—Prokop Bldg. Co., Inc., 690 Long Point St., 23 dwellings, **$365,190**; 19 dwellings, **$371,400**; 26 dwellings, **$383,000**; 17 dwellings, **$345,500**; 25 dwellings, **$379,625**, in sec. of Windsor Village.

Tex., Houston—DWELLINGS—Rozelle Constr. Co., Bellaire, 24 dwellings, **$349,900**.

▲ **Tex., Houston**—COUNTRY CLUB, etc.—W. E. Stephens & Son, Kilgore, Country Club incl. golf course, swimming pool, athletic courts, on Piney Point, 20-acre tract, **$1,000,000**.

Tex., Houston—DWELLINGS—Stewart Hibbler Constr. Co., 1719 Sunset Blvd., 27 frame and masonry dwellings, **$361,115**; 31 dwellings, South Glen Subdivision, **$373,525**.

Tex., Lancaster—CHURCH—First Methodist Church, Sterling May, bldg. chmn., plans by J. H. Brown & J. L. Chapman, 501 M&P bldg., Sherman, masonry church. **$350,000**.

▲ **Tex., Mesquite**—SHOPPING CENTER—Big Town Co., c/o Wes Fenton, 1006 Davis Bldg., Dallas, plans by Tatum & Quade, 2812 Fairmount St., Dallas, shopping center. **$14,000,000**. CD 8/1.

Tex., Pampa—SCHOOL—Holy Souls' Parish, c/o Rev. Myles Monihan, parish school, aud., convent and rectory bldg., 16 acre tract. **$400,000**.

Tex., Richardson—CHAPEL, etc.—First Methodist Church Congregation plans by Fisher & Jarvis, 4519 N. Central Expressway, Dallas, 2 story, blk. long, masonry sanctuary, chapel, fellowship hall and education bldg. **$500,000**.

Va., Annandale—MEDICAL CENTER—Medical Center, Inc. c/o Walton & Assoc., archt., 2049 N. 15th St., Arlington, medical center, **$350,000**.

Wash., Seattle—OFFICE—Dist. Council of Carpenters, 1620 4 Ave., plans by J. Graham & Co., 1426 5 Ave., 3 story, 108x121 ft. rein.-con. office bldg. **$500,000**.

Wis., Milwaukee—OFFICE—Employers Mutuals, Wausau, plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., 2 story, 25,000 sq. ft., alum., glass and brick office bldg., parking area for 90 cars. **$750,000**.

▲ **Wis., Milwaukee**—APARTMENT—Thelka, Brunder & Assoc., 4143 N. Downer Ave., will not construct apartment. **$5,000,000**. Project abandoned, land sold to county.

▲ **N. S., Yarmouth**—HOSPITAL—Sisters of the Sacred Heart, 125 bed hospital. **$1,825,000**.

▲ **Ont., Toronto**—APARTMENT—Mr. & Mrs. Walter Higgins, 117 Lyndhurst Ave., plans by R. M. Radovich, 102 Bernard Ave., 8 story, 189 units, 3 blocks, steel frame, retaining wall, brick apartment bldg., underground parking at Spencer St. annd Tyndall Ave. **$1,500,000**.

▲ **Ont., Toronto**—APARTMENT—J. R. McClintock Builders Ltd., Stephen Dr., apartment project, overlooking Humber River, on Stephen Dr. near Berry Rd., suburban Etobicoke. **$1,000,000**.

▲ **Que., Montreal**—OFFICE—Owner, c/o Greenspoon, Freedlander & Dunne, archts., 4151 Sherbrooke St. W., 17 story office bldg., St. Catherine St. W. and Crescent St. **$1,000,000**.

Sask., Yorkton—HOSTEL FOR AGED—Yorkton Senior Citizen's Committee, H. M. Jackson, plans by McCudden & Robbins, 1411 Albert St., 60-bed hostel for Aged, Anderson Home **$500,000**.

INDUSTRIAL BUILDINGS

▲ **Calif., Anaheim**—LABORATORY, etc.—Altec Lansing Corp., c/o The Austin Co., archt., 777 E. Washington

(Continued on page 158)

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"Moves material where others quit"—Consolidated Construction Co., Bayside, Va. "Our International-Drott TD-9 Four-In-One will move material where other units quit," declares Consolidated Construction Co., Bayside, Va. "It's a multi-purpose rig, has high reach, and will out-load anything in its size class." Here they're getting accurate "carry-type scraper" action on a housing project, with Four-In-One in Bullclam position!

"Beats the others in job variety"—Leon Sumler, Memphis, Tenn. "With it, I can do a far wider variety of jobs than the others," reports Leon Sumler, Memphis, Tenn.—of his International-Drott TD-9 Four-In-One, shown tearing up old filling station slab and footings to load out. "The clamshell speeds the job," he adds, "and Drott bucket roll-back makes it possible to keep heaped loads. It's the one-tractor-man's ideal rig."

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TZS

(Continued from page 156)

Blvd.—Los Angeles, concrete electronics laboratory and manufacturing bldg., 1515 S. Manchester. $1,200,000.

Calif., Coleta—LABORATORY—Raytheon Mfg. Co., c/o Hawel, Arendt, Mosher & Grant, archts., 116 E. Solo St., Santa Barbara, 40,000 sq. ft. research laboratory 15 acres, will have 300 ft. long test tunnel structural steel. $250,000.

Calif., Los Angeles—WAREHOUSE—Macy Industrial Realty Co., 803 E. Macy St., 140x200 ft. concrete warehouse, 117 N. Robertson Blvd. $105,000 Mackintosh & Mackintosh, 306 N. Vermont Ave., consult. engrs.

Calif., Millbrae—WAREHOUSE, etc.—CMPA, Pharmaceutical Prod. Co., c/o J. Francis Ward, archts, 215 Leidesdorff St., San Francisco, 1 story warehouse and office, in Millsdale Industrial Park, $250,000.

Calif., Novato—SUB-STATION—Pacific Gas & Electric Co., 245 Market St., San Francisco, replace present sub-station, Machin and Sweetster Aves. $114,000.

Calif., River Bank—CANNERY WAREHOUSE—Herschel Calif. Fruit Products Co., Inc., River Bank. 48,000 sq. ft. concrete cannery warehouse. $100,000.

Conn., Danbury—FACTORY—Barden Corp., E. Franklin St., factory bldg., Sugar Hollow Rd. $100,000.

Conn., Hartford—WAREHOUSE—Thos. Trant & Bro., Inc., 228 State St., warehouse for wholesale plumbing supply business, Van Block Ave. $300,000.

Conn., Hamden—WAREHOUSE—Louis Weiner, Inc., 318 Crown St., New Haven, 2 store, brick wholesale automobile parts warehouse, 1661 Dixwell Ave. $200,000.

Ill., Chicago—WAREHOUSE, etc.—Lag Drug Co., 4601 S. Wentworth Ave., plans by Robert E. McCracken, Jr., 520 N. Michigan Ave., 1 story, 60,000 sq. ft. warehouse and offices, 2700 block W. 50th St. $750,000.

▲ **Ill., North Chicago**—PLANT—Fansteel Metallurgical Corp., 2200 Sheridan Rd., North Chicago, plant to increase production of tantalum and columbium, $6,-000,000.

Iowa, Cedar Rapids—PLANT—Iowa Steel & Iron Works, 400 12th Ave., S.E., 24 acre site steel plant, Center Point and Blairs Ferry Rds. CD 8/13.

▲ **Kan., Topeka**—PLANT—Goodyear Tire & Rubber Co., E. Market St., Akron, O., plant expansion, $16,-000,000 incl. equip. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., consult. engr. CD 10/28/55.

▲ **Mass., Quincy**—WAREHOUSE, etc.—Pneumatic Scale Corp. Ltd., 65 Newport Ave., plans by Shepley, Bulfinch, Richardson & Abbott, 1 Court St., Boston, 2 story, and warehouse and office, 65 Newport Ave. $1,000,000.

Minn., St. Peter—PLANT—St. Peter Creamery, S. M. Davis, St. Peter, constr. milk drying plant. $145,000.

N. J., East Paterson—WAREHOUSE—Zabriskie Stott Livery Co., 266 Ellison St., 105x166 ft. warehouse, Rt. 46, Roosevelt Ave. and Miles St. $100,000.

Tex., Crockett—MILL—Kennard Lumber Co., Crockett, reconstr. planing mill between Crockett and Lufkin. $100,000.

▲ **Tex., Houston**—FACTORY—Sunneborn Brothers, Inc., 1315 Palmer, factory. $1,000,000.

Tex., Leuders—REFINERY—Texas Calgary Co., Abilene, reconditioning, imprv. asphalt refinery. $750,000. –

▲ **Tex., Richardson**—LABORATORY—Collins Radio Co., Cedar Rapids, Iowa, Engineering and Laboratory, 200 acre site, $1,000,000.

Tex., San Antonio—TELEVISION STATION—KONO and KONO-FM, c/o Mission Broadcasting Co., 317 Arden Grove, imprv. expanding KONO, incl. new and taller transmitting antenna. $100,000.

Tex., Sherman—PLANT—International Business Machine Corp., 2107 Bryan St., Dallas, plans by John S. Bolles, 215 Leidesdorff St., San Francisco, Calif., 1 story, masonry type, 56,000 sq. ft. plant. $390,000.

▲ **Wis., Milwaukee**—BUS TERMINAL—Greyhound Corp., 224 S. Michigan St., Chicago, Ill., plans by Arrasmith & Tyler, 200 Madrid Bldg., Louisville, Ky., bus terminal. $2,000,000. Bids in about 1 month. CD 3/18/53.

▲ **Wis., Superior**—PLANT—National Malleable & Steel Castings Co., 10600 Quincy St., Cleveland, O., plant, $10,000,000.

Alta., Edmonton—PLANT—Northwest Industries Ltd., P.O. Box 517, Northside Municipal Airport, masonry and steel constr. instrument and electronic bldg., 19,-300 sq. ft. $250,000. CD 5/14/46.

Alta., Red Deer—PLANT—Owner, c/o Montreal Trust Co., 8th Ave. at 3rd St. W., Calgary, synthetic rubber plant, on 1,569 acres purchased on north bank of Red Deer River, on Canadian National Ry's. trackage, east of here. $100,000.

N. S., Halifax—PLANT—Dominion Structural Steel, Ltd., 6894 Clanranald Ave., steel plant, with 10-ton crane at Burnside. $500,000. Bids in April 1957.

▲ **Ont., Sudbury**—SMELTER—Consolidated Sudbury Basin Mines Ltd., 360 Bay St., Toronto, smelter at Vermillion Lake and Arrington Mines for Consoldiated Sudbury Basin copper-lead-zinc-silver properties. $12,000,000.

UNCLASSIFIED

Ala., Mobile—RURAL DISTRIBUTION LINE—Gulf Oil Corp., 2900 Gulf Bldg., Pittsburgh, Pa., 33 mi. 8-in. crude line from Fields to Mobile. $275,000.

Calif., Arvin—SWIMMING POOLS, etc.—Parkway Recreation Dist. plans by Whitney Biggs, 3601 Stockdale Highway, Bakersfield, swimming pools, wading pools, and dressing rooms. $100,000.

Calif., Lamont—SWIMMING POOL—Bear Mt. Recreation Dist. plans by Whitney Biggs, 3601 Stockdale Hy., Bakersfield, swimming and wading pools with dressing rooms. $100,000.

▲ **Calif., Long Beach**—ALARM SYSTEM—City, City Hall, replacing alarm system. $400,000. CD 4/15/53, under Sewers, Waste Disposal.

▲ **Calif., Long Beach**—PARKS, etc.—City, City Hall,
Admiral Kidd Park, $196,000.
Atherton Playground, $78,925.
Bixby Park, $202,620.
Bluff Ocean and Victory Parks, $117,500.
Camp Hi-Hill, $198,000.
Coolidge Park, $152,460.
El Dorado Park, $200,000.
Hartewell Park, $105,000.
Marine Stadium, $506,990.
Pan American Park, $178,240.
Scherer Park, $442,210.
Stearns Park, $181,500.
Wardlow Park, $196,020.
new camping areas, $500,000.
5 comfort stations Belmont Pier, Pier Pl., Coronado Molino and 8 Pl., $200,000.
2 comfort stations, Linden and Santa Cruz, $80,000.
band bandshell, $160,000.
stadium imprvs. $800,000. CD 2/15.

Georgia—RURAL DISTRIBUTION LINE—Altamaha Elec. Membership Corp., Lyons, 33 mi. elec. distr. line and sys. improvs. $265,000.

† **La., New Orleans**—UTILITIES—Dist. P. Wks. Office, Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, utilities, Naval Station. $226,000 appropriated.

† **Me., Searsport**—FUEL STORAGE STATION—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., supply facilities, Searsport Fuel Storage Station. $473,000 appropriated.

▲† **Mass., Charlestown**—PIERS—1st Naval Dist., 495 Summer St., Boston, replacement of Pier No. 3, Boston Naval Shipyard, FY-1958; replacement Pier No. 2, Boston Shipyard. $7,332,000. appropriated, Hayden, Harding & Buchanan, Park Square Bldg., Boston, consult engrs. CD 10/4.

Mass., Wakefield—LANDSCAPING—Cabot, Cabot & Forbes Co., 60 State St., Boston, site work-landscaping & grading, $375,000. Bids within 60 days.

Mo., Neosho—SWIMMING POOL—City, Homer Ball, city mgr., defeated $110,000 bonds, swimming pool auxiliaries and appurtenances. Project indefinitely postponed. CD 8/1.

▲ **N. J., Asbury Park**—PARKING LOTS—Asbury Park Parking Auth., series of parking lots in hotel and business areas. $1,000,000. Willur Smith & Assoc., 265 Church St., New Haven, Conn., consult. engrs. CD 1/4/46.

N. J., Asbury Park—NATATORIUM, etc.—City, City Hall, plans by Arthur E. Lawrence, City Hall, renovation of natatorium and creation of modern beach club facilities, $650,000.

▲† **New York**—NATIONAL GUARD FACILITIES—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Visco, Franzblau Assoc., 114 Liberty St., New York Zone 6, National Guard Facilities, FY 1955 program, New York and Niagara Area. $1,000,000-$3,000,000. CD 4/17.

O., Toledo—PARK MAINTENANCE BLDG.—City, City Hall, maintenance bldg., at Ottawa or Willys Park, for Park and Recreation Dpt. $358,000. CD 5/17/45.

Pennsylvania—RECREATION AREA—General State Auth., 18 and Herr Sts., Harrisburg, recreation area, incl. bathing beach at Brooks Run; roads, fence and stilling base in below dam, access road for boating and spillway, forebay for parking at First Fork Sinnemahing Creek, George B. Stevenson Dam. $100,000. CD 11/30/51, under Earthwork, Waterways.

Pa., Collingdale—SWIMMING POOL—Collingdale Swim Club, 726 Rively Ave., plans by Clifford E. Garner, 10 S. 8 St., Phila., swimming pool, filter plant, bath house, $100,000.

Pa., Quakertown—SWIMMING POOL, etc.—Boro, Quakertown, 72x250 ft. concrete, masonry swimming pool and bathhouse. $250,000.

▲ **Texas**—GAS LINES—Atlantic Refining Co., 607 Lehman Dr., improving and new line work for gathering dist. gas lines, $1,000,000; some gas transmission line imprvs. and new lines, $750,000, on Gulf Coast area.

Texas—RURAL DISTRIBUTION LINES—Rusk Co. Electric Co-op., Henderson, 75 mi. elec. distrib. line and sys. imprvs., Rusk Co., $255,000.

Tex., Bronte—GAS PIPE LINE—Humble Oil & Refining Co., 1216 Main St., Houston, casinghead gas pipe sys., $200,000. CD 6/28.

Tex., Dallas—SWIMMING POOL—City, City Hall, rein. con. swimming pool near Exline Park at Pine and Latimer Sts. $110,000. J. G. Rollins, Direc. Pub. Wks. Eng. CD 2/8.

Tex., Hondo—L. P. G. INJECTION FACILITIES—Wherry & Green, c/o San Jacinto Bldg., Houston, construct facilities for L.P.G. injection to increase oil recovery, near here. $200,000. Gasoline Plant Constr. Co., c/o N. Esperson Bldg., Houston, consult. engrs.

▲† **Va., Norfolk**—NAVAL STATION—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, Naval Station, personnel facilities. $2,844,000 appropriated.

† **Va., Norfolk**—HARBOR DEFENSE BASE—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, Harbor Defense Base, personnel facilities. $300,000 appropriated.

Wash., Chehalis—SWIMMING POOL—City, City Hall, swimming pool. $100,000. Stevens & Thompson, Spaulding Bldg., Portland, Ore., consult. engrs. CD 3/15/54.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Me., Topsham**—GATE HOUSE, etc.—BA On Or About 9/21—U. S. Eng., 150 Causeway St., Boston 14, Mass. gate house, headquarters bldg., A.I.E. and shop, fire station and auto maintenance shop, officers' quarters and club, chapel PX and service club and gymnasium, Topsham Air Force Base, ENG-19-016-57-55. $1,250,000-$1,500,000.

BUILDINGS—BA

▲ **Conn., New Britain**—SCHOOL—BA 10/26—Town, Supt. Schools, Walnut Hill School, North Junior High School, Farmington Ave. **$1,261,000. Plans deposit** $150. Extended date. John W. Priestly, Jr., Sun Bldg., Lowell, Mass., archt. CD 8/9.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn., Augusta,
Bridge Constr. Corp., Augusta, Me., LB **$825,693.** grav. road 4.862 mi. U.S. 2, Farmington and New Sharon, F-025-2 (4).

MAINE—State Hy. Comn., Augusta,
The Bridge Constr. Corp., Augusta, Me., CA, **$983,934.** Jonesport-Beals Bridge, State Proj. 67200, Washington Co. Bids Aug. 22. CD 8/3.

▲† **B. Perini & Sons, Inc.**, 73 Montwait Ave., Framingham, Mass., LB **$1,917,777**, est. $1,788,691, const. Otter Brook Dam, Keene-Roxbury, CIVENG-19-016-57-4, NEW HAMPSHIRE. U. S. Eng., 150 Causeway St., Boston, Mass. Bids Aug. 24. CD 7/27.

† **Davison-Williams Constr. Co.**, P.O. Box 97, Portsmouth, N. H., LB **$880,489**, est. $900,000, site preparation and utilities, Portsmouth Air Force Base, IFB 27-604-57-2, PORTSMOUTH, N. H. Procurement Office, Portsmouth Air Force Base, Portsmouth, N. H. Bids Aug. 24. CD 8/17.

▲† **U. S. Eng.**, 150 Causeway St., Boston, Mass., rejected bids, six 3,000 hp. steam turbine accessories, MIDDLETOWN, CONN. LB **$1,260,580**. CD 8/1, under LB.

BUILDINGS—LB & CA

M. S. Kelliher Co., 294 Washington St., Boston, Mass., CA, **$894,396**. REHABILITATION CENTER, Harrison Ave. and Bennett St., BOSTON, MASS. Boston Dispensary, 25 Bennett St., Boston, Mass. Bids Aug. 21. CD 8/27, under LB.

F. L. Collins & Sons, Inc., 408 Academy Bldg., Fall River, Mass., CA, **$750,000.** NURSING and CONVALESCENT HOME FOR AGED and CHRONICALLY ILL, Catholic Memorial Home, 2446 Highland Ave., FALL RIVER, MASS. Diocese of Fall River, Most Rev. James L. Connolly, Bishop, Fall River, Mass. Bids Aug. 15. CD 8/15.

E. H. Porter Constr. Co., 13 Wallis St., Peabody, Mass., LB **$762,866**. HIGH SCHOOL addns., alterations, Main St., LYNNFIELD, MASS. Town School Comn., Lynnfield, Mass. Bids Aug. 23.

Lorello & Naccarato, 3 E. Main St., Mystic, Conn., LB **$645,000**. JUNIOR-SENIOR HIGH SCHOOL and existing bldg. alterations, Sam Tooker Farm, OLD LYME, CONN. Town, Bd. Educ., Town Hall, Old Lyme, Conn. Bids Aug. 21. CD 8/3.

▲ **Herman Glickman & Son**, 1931 Mott Ave., Far Rockaway, N. J. Separate Contracts. **$2,000,000**. garden-type APARTMENT, incl. 170 units Linde House, Hope St. and Glenbrook Rd., STAMFORD, CONN. CD 6/8.

Thomas J. Reardon Co., 22 Knight St., Norwalk, Conn., LB **$877,000** (6 bidders) Burr Farm Elementary SCHOOL, Long Lots Rd., WESTPORT, CONN. Town School Bldg. Comn., Town Hall, Westport, Conn. Bids Aug. 22. CD 8/7.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 11 Maryland — September 13 New York

▲ **N. Y., New York**—BA 9/25—Bd. Water Supply, 120 Wall St., New York, Cont. 453, constr. portion of West Delaware Tunnel of the Delaware Sys., incl. approx. 26,000 lin. ft. tunnel, incl. Shaft 4, approx. 380 ft. deep. Town of Colchester, Delaware Co. and Town of Rockland, Sullivan Co. Plans deposit $5. CD 1/27/50.

BUILDINGS—BA

▲ **D. C., Wash.**—HEADQUARTERS—BA 9/13—Equitable Life Insurance Co., 816 14 St. N.W., headquarters bldg. north of McLean Gardens, Wisconsin Ave. N.W. $2,000,000. Leon Chatelaine Jr., 1727 K St. N.W., Wash., D. C., archt. CD 11/25.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,
N. Y.—**Weber Constr. Co., Inc.**, 133 Wall St., Schenectady, N. Y., LB **$687,189**. (3 bidders) Lock 17 Erie Canal at Little Falls, U. S. 91, Herkimer Co.;
N. Y.—**N. H. Bell, Poland, N. Y.**, LB **$128,745**, est. $131,395 (4 bidders) Alder Creek Dam on Black River, M 56-5, Oneida Co.;
N. Y.—**Cushing Constr. Co., Inc.**, 133 Wall St., Schenectady, N. Y., LB **$173,192**, est. $214,000 (4 bidders) 3.47 mi. Vrooman-Howes Cave, S.H. 5195. Central Bridge-Quaker St., Pt. 1, S.H. 5619, FARC 56-50, Schoharie Co., Rte. 7;
N. Y.—**Walter P. Blimm Co., Inc.**, Lockport, N. Y., LB **$319,550**, est. $382,000 (8 bidders) 6.56 mi. Medina-Albion, SH 5469, Albion-Fancher, SH 5422. Rte. 31, FARC 56-56, Orleans Co.;
N. Y.—**Central Highway Corp.**, Heffernan Bldg., East Syracuse, N. Y., LB **$349,115**, est. $461,000 (5 bidders) 5.66 mi. Elbridge-Camillus, Pt. 1, SH 5080, Camillus-Fairmount, Pt. 1, SH 5318A and 5318 Camillus-Fairmount, Pt. 2, SH 5016, Rte. 5, Proj. F-446 (5), FARC 56-53, RC 56-54, Onondaga Co.;
N. Y.—**A. L. Blades & Sons, Inc.**, Hornell, N. Y., LB **$357,191**, est. $390,000 (4 bidders) 5.19 mi. Big Creek, Pts. 1, 2 and 3. S.H. 906-1,000. Rte. 70, Proj. F-867 (3), FARC 56-57, Steuben Co.;
N. Y.—**The Jorge Co.**, 200-09 47 Ave., Flushing, N. Y. LB **$99,999**, est. $119,000 (3 bidders) 0.31 mi. West approach, Kingston-Rhinecliff Bridge, Cont. 6. BA-56-1P, Ulster Co.;
N. Y.—**Amsterdam Excavating Co., Inc.**, Amsterdam, N. Y. LB **$86,827**, est. $87,000, (1 bidder) 0.28 mi. Spring Glen Rd., FESS. 56-7, Ulster Co.;
N. Y.—**W. E. O'Neil Constr. Co.**, Syracuse, Kemper Bldg., Syracuse, N. Y., LB **$2,408,286**, est. $2,570,000 (4 bidders) 2.70 (2.11 acc.) mi. Syracuse-Bridgeport, Pt. 1, SH 672, Syracuse-Bridgeport, SH 672A, Syracuse-Bridgeport, Pt. 3, FARC 56-47. FASH 56-3, Onondaga Co.,
N. Y.—**Camarco Contractors, Inc.**, Rte. 6, Carmel, N. Y., LB **$81,504**, est. $82,000, 0.3 mi. Amenia-Wassaic, SH 537, Amenia-Sharon Station, SH 712 Rte. 22. FARC 56-59, Dutchess Co. Bids Aug. 23. CD 7/27.

▲ **NEW YORK** Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,
received no bids Aug. 23, 7.38 mi. Aiden-Lair-Newcomb, Pts. 1 and 2, SH 5187 and 756. FARC 56-66. Rte. 28N, Essex Co., est. **$1,200,000;** 1.67 mi. Tahawys-Schroon River, Pt. 2, FASS 56-8, Essex Co. est. **$290,000;** 2.49 (0.42 Acc.) mi. City of Fulton, North-South Arterial (1st, 4th and 2nd Sts.). Rte. 57, FAC 56-10, Oswego Co. est. **$959,000**. CD 7/27.

BUILDINGS—LB & CA

Avalon Park, c/o Stanley Shaftel, archt., 166-21 90 Ave., Jamaica, N. Y. Owner Builds. **$730,000,** 41 HOUSES, Newbridge Rd., south of Merrick Rd., BELLMORE, N. Y.

▲ **W. J. Barney Corp.**, 101 Park Ave., New York 17, N. Y. CA Est. **$2,000,000.** remodeling building, Jay, Lawrence, Johnson Sts., Myrtle Ave. into SCHOOL BLDG., BROOKLYN, N. Y. Brooklyn Polytechnic Institute, 85 Livingston St., Brooklyn 2, N. Y. Alton L. Craft, 133 E. 39 St., New York 16, N. Y., archt.

▲ **Newtown Creek Constr. Co.**, c/o Schuman & Lichtenstein, archts., 369 Lexington Ave., New York 17, N. Y. Separate Contracts. **$2,600,000**. 15 one-story INDUSTRIAL BLDGS., tract on Newtown Creek, MASPETH, N. Y.

▲ **Mars Associates & Normel Constr. Co.**, 132 Nassau St., New York 7, N. Y., LB **$1,893,000** (2 bidders) general constr. Public SCHOOL 175, W. 134 and W. 135 Sts. between Lenox and 7th Aves., Manhattan Boro. NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 22. CD 7/31.

▲ **M. Melnick & Co., Inc.**, 225 Willow Ave., New York 54, N. Y., LB **$1,339,000** (5 bidders) general constr. modification, addn. to Junior HIGH SCHOOL 52, Academy St. and Broadway, Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 16. CD 7/12.

▲ **Psaty & Fuhrman, Inc.**, 369 Lexington Ave., New York 17, N. Y., LB **$3,184,000** (7 bidders) general constr. Junior HIGH SCHOOL 117, west side Second Ave. between E. 108 and E. 109 Sts., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 24. CD 8/10.

▲ **John Rosenblum, Inc.**, 1860 Broadway, New York 23, N. Y., LB **$1,556,000** (6 bidders) general constr. Public SCHOOL 8, E. 201 St. and Mosholu Parkway, Bronx Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 21. CD 7/31.

▲ **The Tenmen Realty Corp.**, 521 5th Ave., New York 17, N. Y. Separate Contracts. **$1,285,000,** APARTMENT, 340-50 W. 74 St., NEW YORK, N. Y. CD 5/17.

▲ **Turner Constr. Co.**, 150 E. 42 St., New York 17, N. Y. CA **$2,000,000**. interior changes to 26-story OFFICE, 28-36 Gold St., 91-101 John St. and 1-21 Cliff St., NEW YORK, N. Y. Great American Insurance Co., 1 Liberty St., New York 5, N. Y. CD 5/4.

Lorton Estates, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. **$600,000**. 30 HOMES, Wilson Ave., west of Bellmore Ave., NORTH MERRICK, N. Y.

Jacob V. Gieling, c/o A. Rasmussen, archt., 217 Smith St., Perth Amboy, N. J., Owner Builds, **$400,000.** 33 HOMES, Silverton Section, DOVER TWP. (P.O. TOMS RIVER), N. J.

▲ **Syndicate,** c/o Armino A. Campagna, 200 W. 72 St., New York 23, N. Y., Owner Builds, **$1,000,000**. 10 story APARTMENT, for 125-families, South Mum Ave., EAST ORANGE, N. J.

▲ **Brentwood Hills Estates,** c/o Frank J. Dupignac, 311 S. Washington Ave., Bergenfield, N. J., Owner Builds **$3,800,000**. 114 HOUSES on tract at Summit Ave. and Chestnut St., ENGLEWOOD CLIFFS, N. J.

▲ **R & S Builders**, 90 Main St., Hackensack, N. J., CA **$1,500,000**, 72 HOMES, Prospect St., GLEN ROCK, N. J. Morris Stein, c/o Carlton Homes, 90 Main St., Hackensack, N. J. C. J. Kordys, 116 Passaic St., Passaic, N. J., archt.

Edrab Constr. Corp., Rte. 35, P. O. Box 158, R.F.D., Keyport, N. J. Owner Builds, **$800,000**. 30 HOMES, New Monmouth Rd., Raritan Twp. near KEYPORT, N. J. Lester Cohen, 234 Clinton Pl., Hackensack, N. J., archt.

▲ **Ercole Tamburelli**, 574 Grand Ave., Englewood, N. J., CA **$1,000,000**. DEPARTMENT STORE, 12-acre tract at Route 17, Essex St. and Maywood Ave. LODI, N. J. Modell's Shoppers World, 198 Broadway, New York 7, N. Y. M. George Vuinovitch, Palisade Ave., Englewood Cliffs, N. J., archt.

▲ **James & Harvey Cosden**, 126 Spring Valley Rd., Oradell, N. J. Owner Builds. **$3,000,000**. 109 HOMES in "Oradell Village", ORADELL, N. J. Peter H. Butler, 172 State St., West Englewood, N. J., archt.

Edfair Homes, c/o Pitcher & Schultz, 29-01 Broadway, Warren Point, N. J. Owner Builds, **$600,000**. 30 HOUSES on tract at Oping Rd. and Ferndale Pl., POMPTON PLAINS, N. J.

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh, Pa. CA **$1,000,000**. design and construct HOSPITAL WINGS addn., BEAVER FALLS, PA. Providence Hospital, Beaver Falls, Pa. Bids July 23, awarded Aug. 24. CD 7/19.

Funk Building Corp., 754 S. Millvale St., Pittsburgh, Pa., CA, Est. **$800,000**. 100x800 ft., brick, block, steel SHOPPING CENTER, LATROBE, PA. Greater Latrobe Shopping Center, Frick Bldg., Pittsburgh, Pa. Charles Roberts, 5991 Center Ave., Pittsburgh, Pa., archt. CD 3/29.

▲ **Vanadium Alloys Steel Co.**, Latrobe, Pa. Owner Builds. **$1,500,000**. STEEL MILL addns., ROLLING MILLS, HAMMER and MELTING SHOPS addns., LATROBE, PA.

Lazear Bros., 6323 Beacon St., Pittsburgh, Pa. CA **$500,000**. 1 story, brick, block, steel SCHOOL, OAKMONT, PA. St. Anthony's R. C. School for Exceptional Children, Oakmont, Pa. Bids July 25. CD 7/19.

Leslie Corp., 2612 Essleston St., Silver Spring, Md. Owner Builds. **$855,000,** 57 HOMES, Donover Dr., Finch St., Leslie St. and Leslie Dr., SILVER SPRING, MD. Jack C. Cohen, 7961 Eastern Ave., Silver Spring, Md., archt.

Bolling Brook, Inc., 4711 Coachway Dr., Rockville, Md. Owner Builds. **$605,000,** 55 HOMES, Wyaconda Rd., Wilwyn Way, Bolling Brook Parkway and Monongahela Dr., WHEATON, MD.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 14 Tennessee

STREETS AND ROADS

September 14 Tennessee

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg. 1221 E. Broad St., Richmond,
George M. Brewster & Son, Inc., 275 Fort Lee Rd., Bogota, N. J., CA **$2,977,820**. Cont. B-1A, Hampton approach highway and structures (Hampton Roads Proj.) City of Hampton. Bids Aug. 8. CD 8/17, under LB.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raeligh,
Blythe Bros. Co., Box 989, Charlotte, N. C., CA **$617,330.**, est. $400,000-$500,000, SABC, b. conc. 4.91 mi. Proj. 7-209, S 889 (1), Code 5900-1003, B. S. 10-7-67-25, Mecklenburg Co. Bids July 31, awarded Aug. 23. CD 8/6, under LB.

▲† **J. L. Coe Constr. Co., Inc.**, Builders Bldg., Charlotte, N. C. CA **$1,665,526**. finish hangar, 1 story rectangular, structural steel frame, masonry, etc., Marine Corps Air Station, NOy 91320, Spec. 48260, CHERRY POINT, N. C. Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids July 17. CD 8/15, under LB.

† **Ralph E. Mills Co.**, 410 Ann St., Frankfort, Ky. LB **$557,070**. (5 bidders) Proj. 1A8-2A1, grading, draining, processing oolite rock base, bit. prime coat and surf. tr. 10.306 mi. from Joree Hammock Rd. to concrete bridge and Mahogany Hammock Rd. from Park Rd. to Mahogany Hammock, Everglades National Park, FLORIDA. Bureau P. Rds., Dpt. Commerce, Homestead, Fla. Bids Aug. 23. CD 7/30.

▲† **Massman Constr. Co.**, 3917 Broadway, Kansas City, Mo., and **Farrell Constr. Co.**, Memphis, Tenn., CA **$4,471,798**. deepening and partially relocating Florence Canal below Wilson Dam, ALABAMA. Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn. Awarded Aug. 24.

▲ **LOUISIANA** State Hy. Dpt., Highway Office Bldg., Baton Rouge,
Boh Bros. Constr. Co., 2400 Cypress St., New Orleans 19, La., LB **$4,885,351** (5 bidders) elevated steel concrete structure, c. conc. 0.47 mi. New Orleans approach to Mississippi River Bridge (Pontchartrain

Expressway) Rte. LA 3019, S. P. No. 283-08-11, FAP No. U-409 (7), Orleans Parish. Bids Aug. 22. CD 7/25.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—**T. L. James & Co., Inc.**, Box 531, Ruston, La., LB **$754,369** (2 bidders) wid'n. c. conc. pavement and bit. hot mix surf. 11.696 mi. Rte. La.-U. S. 90, S. P. No. 5-05-26 and 5-06-17, Houma-Raceland Hy., Terrebonne and LaFourche Parishes; LB **$262,103** (3 bidders) bit. surf. tr. 5.568 mi. Rte. La. 333. S. P. No. 194-06-07. Intracoastal City-Esther Hy., Vermilion Parish;

La.—**LeBlanc Bros.**, 702 La. Natl. Bank Bldg., Baton Rouge, La., LB **$145,315** (1 bidder) bit. hot mix overlay 13.06 mi. Rte. La-U. S. 90, Boutte-Avondale Hy. S. P. No. 5-09-15 and 5-10-10, St. Charles and Jefferson Parishes;

La.—**W. H. Patterson & Co.**, Box 2229, Baton Rouge, La., LB **$445,482** (5 bidders) wid'n. and surf. existing c. conc. pavement 9.755 mi. Rte. La.-U. S. 165, Woodworth-Alexandria Hy. S. P. No. 14-06-13, Rapides Parish;

La.—**Coastal Contractors, Inc.**, Box 911, Baton Rouge, La., LB **$197,962** (3 bidders) bit. surf. tr. 3.392 mi. Rte. 345. Louis LeBlanc and Landry Rd. Hy. S. P. No. 401-01-05 and 713-02-50, Iberia Parish; LB **$785,020** (6 bidders) wid'n. existing c. conc. pavements and bit. hot mix surf. 15.733 mi. Rte. La.-U. S. 65, Transylvania-Highland Hy. S. P. 20-08-06-20-09-13, East Carroll Parish;

La.—**Campbell Constr. Co., Inc.**, Box 1758, Shreveport, La., LB **$473,840** (6 bidders) wid'n. and surf. existing c. conc. 9.568 mi. Rte. La.-U. S. 167. Packton-Winnfield Hy. S. P. No. 23-04-08, Winn Parish;

La.—**Barnhill Bros., Inc.**, Many, La., LB **$452,407** (5 bidders) bit. surf. tr. 8.617 mi. Rte. La. 112. Deridder Sugartown Hy. S. P. No. 188-01-07 and 188-02-07, Beauregard Parish.

La.—**Austin Contg. Co.**, Box 1590, Dallas, Tex., LB **$137,530** (3 bidders) bit. surf. tr. 4.35 mi. Olivier-Lydia Hy. S. P. No. 713-02-51, Iberia Parish; LB **$238,840** (3 bidders) bit. surf. tr. 6.209 mi. Iberia Port-Morbihan Hy. State Proj. 713-02-53, (Sects. 1, 2 and 3), Iberia Parish;

La.—**Roy M. Lilly**, Baton Rouge, La., LB **$113,430** (3 bidders) bit. surf. tr. 2.81 mi. Belle Place-Vida Hy. State Proj. 713-02-52, Iberia Parish;

La.—**Ben F. Hawkins, Contr.**, Box 486, Lake Village, Ark., LB **$93,634** (4 bidders) bit. surf. tr. 3.189 mi. Rte. No. La. 3024. Maryland Rd. S. P. No. 854-24-03. Tensas Parish. Bids Aug. 22. CD 8/16.

R. B. Tyler Co., 2500 Poydras St., New Orleans, La. LB **$168,752, paving, subsurface drainage program** incl. subsurface drainage; paving concrete gutters and curbs, NEW ORLEANS, LA. City, 302 City Hall, New Orleans, La. Bids Aug. 7;
Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. LB **$513,439**. (New Orleans, La.);
Keller Constr. Co., 7900 Palm St., New Orlans, La. LB **$113,334**. (New Orleans, La.);
Pat Caffey Constr., Inc., 4536 D'Hemecourt St., New Orleans, La. LB **$186,928**. (New Orleans, La.);
Texas Bitulithic Co., Burma Rd., New Orleans, La. LB **$173,251**. (New Orleans, La.).

W. L. **Hailey, Inc.**, 314 N. 42 Ave. N., Nashville, Tenn., CA **$997,000**, Sect. A, Contr. 226, Ohio River Interceptor sewer, diversional structure and appurtenant work, LOUISVILLE, KY. Metropolitan Sewer Dist., 412 W. Market St., Louisville, Ky. Bids Aug. 21. Awarded Aug. 22. CD 8/27, under LB.

▲† **Westinghouse Electric Corp.**, Burwell Bldg., Knoxville, Tenn. CA **$6,050,000**. 275,000 kw turbogenerator for Third Generating Unit at Gallatin Steam Plant, TENNESSEE. Grand total $12,366,844. Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn. Awarded Aug. 24;
Combustion Engineering, Inc., 208 Madison Ave., New York 16, N. Y. CA **$5,073,530**. steam generating unit for Gallatin Electric Steam Plant, (Tennessee);
Ingalls Iron Works, 620 4th Ave. S., Birmingham, Ala. CA **$1,243,314**. structural steel for power house at Gallatin Steam Plant (Tennessee).

BUILDINGS—LB & CA

C. G. **Shockley Constr. Co.**, 2020 Blanding St., Columbia, S. C. CA **$465,834**. Lexington HIGH SCHOOL, LEXINGTON, S. C. Bd. Trustees, Lexington School Dist. 1, Lexington, S. C. Jesse W. Wessinger, 733 Meeting St., West Columbia, S. C., archt. Bids Aug. 16.

Sam **A. Rizzo**, 1693 N. E. 125 St., North Miami, Fla., CA **$647,600**. 96 RESIDENCES, N.E. 205 Terrace to 211 St. and N. E. 12 Ave. to 14 Ave., MIAMI, FLA. Suburban Greens, Inc., 1693 N. E. 123 St., North Miami, Fla.

Dyson & Co., 806 W. Romano St., Pensacola, Fla., CA **$579,070**. ADMINISTRATION and SCIENCE BLDGS., Pensacola College, PENSACOLA, FLA. Bd. P. Instruction, Escambia Co., Pensacola, Fla. Bids Aug. 7, awarded Aug. 22. CD 8/27, under LB.

▲ **Farnsworth & Chambers Co., Inc.**, Box 332, New Orleans, La., LB **$1,244,600**, 5 story HOSPITAL addn., LAFAYETTE, LA. Our Lady of Lourdes Hospital, Lafayette, La. Bids Aug. 15. CD 7/25.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 11 Indiana
STREETS AND ROADS
September 18 Ohio

▲ **Ill., Lake Forest**—BA 9/17—City, City Hall, pumping station, chemical bldg., filter bldg., water mains addn., b. conc. roadways. $1,650,000. Greeley & Hanson, 220 S. State St., Chicago, engrs. CD 12/2/55.

▲ **O., Cleveland**—BA 9/24—Comrs. Cuyahoga Co., Court House, Zone 13, exten. Pleasant Valley Rd. from Brecksville to **Alexander Rds.** by **grading**, paving and constructing **bridges, grade** eliminations, and channel relocation, Independence-Valley View, $2,760,650. Plans deposit $100. Albert S. Porter, c/o owner, engr. CD 4/1/55.

▲ **Mich., Detroit**—STRUCTURAL STEEL—BA 9/25—At office City Engineer, City-County Bldg., Detroit, Zone 26, furnishing, erecting structural steel of convention-exhibit, bldg., Civic Center Contract MH-52-B, Parts "A" and "B", $5,000,000-$6,000,000. Plans deposit $100. Giffels & Vallet, Inc., L. Rossetti, Associated Engineers & Architects, 1000 Marquette Bldg., Detroit, Zone 26, archts.-engrs. CD 8/27/54, under Public Buildings.

BUILDINGS—BA

▲ **Ind., Valparaiso**—CATHEDRAL—BA 9/17—University of Valparaiso, Valpariso, 6 story, part bsmnt., brick, stone cathedral, $1,000,000. Stade, Dolan, Anderson & Assocs., 15½ Fairview Ave., Park Ridge, archts. CD 2/15, under Public Buildings.

▲ **Mich., Ann Arbor**—RESIDENCE HALL—BA 9/24—Bd. Regents, University of Michigan, W. K. Pierpont, vice-pres., 204 Plant Service Bldg., North University and Forest Aves., Ann Arbor, Proj. 87, residence hall, incl. food facilities, $4,000,000. Plans deposit $100. Harley, Ellington & Day, Inc., 153 E. Elizabeth St., Detroit, Zone 1, archt. CD 10/31.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 19,

O.—**Arthur S. Langenderfer, Inc.**, 4690 W. Bancroft St., Toledo, O., LB **$249,047**, est. $275,400 (2 bidders) Type T-35 3.605 mi. SR 108-11.43, F-557 (4), Henry Co.;

O.—**Ruckman & Hansen, Inc.**, 3617 N. Clinton St., Fort Wayne, Ind., LB **$817,700**, est. $806,200 (5 bidders) Type T-35, T-71 and structure 0.71 mi. SR 12-(0.64-1.08), U-UG-646 (3), City of Fostoria, Seneca Co.;

O.—**The Heffner Constr. Co.**, 509 N. Main St., Celina, O., LB **$204,408**, est. $247,700 (2 bidders) Type T-35, 3.836 mi. USR 33-(0.01-1.25); SR 49-1.00, S-497 (6), Village of Willshire, Van Wert Co.;

O.—**The Koski Constr. Co.**, National Bank Bldg., Ashtabula, O., LB **$164,055**, est. $164,300 (1 bidder) Type T-35 5.03 mi. USR 20-(13.27-16.95), Village of North Kingsville, Ashtabula Co.;

O.—**Manix Bros.**, Rte. 1, Greenville, O., LB **$93,817**, est. $84,000 (2 bidders) Type T-35, 1.08 mi. USR 25-(7.26-7.93), City of Sidney, Shelby Co.;

O.—**The Herkner Contg. Co. & The Herkner Constr. Co.**, 5450 Hamilton Ave., Cleveland, O., LB **$3,741,595**, est. $3,993,100 (6 bidders) Type T-71 and structures 8.341 mi. SR 82-19.09, Trumbull Co. Bids Aug. 21. CD 8/10.

Mosser Constr. Co., Fremont, O., CA **$637,012**, sewage disposal plant, CAMPBELL, O. Village, John DeMart, Safety-Service Dir., Campbell, O. Bids Aug. 23. CD 6/19, under LB.

▲ **Allied Structural Steel Co.**, 20 N. Wacker Dr., Chicago, Ill., CA **$3,893,545**. Contract 1-C-2 and 1-C-3, furnishing, fabricating, erecting structural steel for main ramps into Michigan Ave. and Indiana Ave., Calumet Skyway Toll Bridge, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids July 23. CD 8/9, under LB.

BUILDINGS—LB & CA

Paul Kintz Constr. Co., 62 E. Summit St., Alliance, O. CA Est. **$500,000**, general constr. Thomas Erwin Wilson, SCIENCE BLDG., ALLIANCE, O. Bd. Trustees, Mt. Union College, Alliance, O. Awarded Aug. 20. CD 1/24/52.

▲ **Ridgeview Center, Inc.**, c/o J. N. Rassler Realty Co., Elyria Savings & Trust Bldg., Elyria, O. Owner Builds. **$3,000,000**. 200,000 sq. ft. SHOPPING CENTER, 36 stores, 38-acre site, U. S. Rte. 20, easterly line of Elyria Twp., ELYRIA, O.

Carlson-Reid Builders, Inc., P. O. Box 330, East Chicago, Ind., CA, **$721,612**. Elementary SCHOOL, 21 Ave. and Iowa St., GARY, IND. School City of Gary, 524 Garfield St., Gary, Ind. Bids Aug. 14. CD 8/23, under LB.

General Constr. Co., 301 Garfield St., Michigan City, Ind., CA, **$637,520**. 1 story, brick Garfield Elementary SCHOOL, 23 and Garfield Sts., GARY, IND. School City of Gary, 524 Garfield St., Gary, Ind. Bids Aug. 14. CD 8/2.

▲ **E. H. Marhoefer Jr., Co.**, 2424 N. 25 St., Franklin Park, Ill., LB **$7,672,594**. PSYCHIATRIC RESEARCH and TRAINING HOSPITAL, 1606-59 W. Taylor St., West Side Medical Center, CHICAGO, ILL. State of Illinois, Capitol Bldg., Springfield, Ill. Bids Aug. 21. CD 7/24.

▲ **Milton & Co.**, 2709 W. Roosevelt Rd., Chicago, Ill., CA **$6,000,000**. 37 story 450-unit APARTMENT, 63-73 E. Wacker Dr., CHICAGO, ILL. Southern Realty Co., c/o Geo. S. Lurie, 120 S. LaSalle St., Chicago, Ill. CD 6/26.

Schless Constr. Co., Downers Grove, Ill., CA, **$904,524**. 5 story HOSPITAL addn., Berteau Ave., ELMHURST, ILL. Memorial Hospital of DuPage Co., 189 Avon Ave., Elmhurst, Ill. Bids May 29. CD 6/12, under LB.

Charles D. Smith & Son, Inc., Box 508, Fond du Lac, Wis., CA, **$547,000** general contract GYMNASIUM ADDN. for high school, CEDARBURG, WIS. Bd. Educ., Cedarburg, Wis. Bids July 23, awarded Aug. 16. CD 8/916, under LB.

L. G. **Arnold, Inc.**, Box 228, Eau Claire, Wis., CA, **$652,000** general contract HIGH SCHOOL, MINOCQUA, WIS. Lakeland Union High School, Dist., Minocqua, Wis. Bids Aug. 6. CD 8/23, under LB.

Bd. Educ., Waterford, Wis., cancelled bids to have been opened Sept. 13, 1 and 2 story, concrete, steel, brick, block HIGH SCHOOL addn., WATERFORD, WIS. Est. **$450,000**. CD 8/23.

▲ **Miller-Davis Co.**, 1029 Portage St., Kalamazoo, Mich., LB **$1,249,000**. DORMITORIES, Ferris Institute, BIG RAPIDS, MICH. State, Clair Taylor, secy. State Bd. Educ., Capitol, Lansing, Mich. Bids Aug. 21. CD 4/16.

▲ **Jeffries-Dyer Co.**, P. O. Box 378, Ann Arbor, Mich., CA **$1,750,000**. WOMEN'S RESIDENCE HALL No. 2. Eastern Michigan College, YPSILANTI, MICH. State, Clair Taylor, secy. State Bd. Educ., Capitol Bldg., Lansing, Mich. Bids Aug. 21. CD 8/7.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 11 Iowa   September 14 North Dakota
STREETS AND ROADS
September 11 Iowa   September 14 North Dakota

BUILDINGS—BA

Mo., Creve Coeur (St. Louis 24 P.O.)—SCHOOL—BA 9/18—Parkway Consolidated School Dist., Dr. Robert D. Snyder, supt. Schools, Mason Ridge School, Mason Rd. and Daniel Boone Parkway, approx. 72,000 sq. ft. floor space, 6 bldgs. Junior-Senior High School on Woods Mill near Ladue Rd. $600,000. Hellmuth, Obata & Kassabaum, 315 N. 10 St., St. Louis, Zone 1, archts. CD 2/20.

Tex., Houston—HOSPITAL—BA 9/18—University of Texas, Bd. Regents, Austin, M. D. Anderson Hospital and Tumor Clinic alterations and expansion in Medical Center. $788,000. Extended date. CD 8/23.

Tex., San Antonio—EDUCATIONAL—BA 9/18—Laurel Heights Methodist Church, Woodlawn and Belknap Sts., educational bldg., addn., Boy Scouts bldg. $500,000. Plans deposit $50. Milton A. Ryan, 601 Elizabeth Rd., archt. R. Marvin Shipman, 146 W. Olmos Dr., and W. A. Moore Eng. Co., 2502 Blanco Rd., engrs.

Tex., Fort Worth—SCHOOL—BA 9/20—Fort Worth P. Schools, Ed. P. Williams, bus. mgr., 3210 W. Lancaster St., 1 story, masonry Eastland Elementary School, 4016 Eastland St. $450,000. Plans deposit $25. Charles E. Armstrong, 1013½ University Dr., archt. CD 5/2.

▲ **Minn., Brainerd**—ADMINISTRATION-HOSPITAL—BA 9/21—State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 Capitol St., St. Paul, constr. first unit, administration-hospital bldg. of new State School and Hospital. $1,200,000. Plans deposit $50. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 8/26/53.

▲ **Tex., San Antonio**—HIGH SCHOOL—BA 9/25—San Antonio Independent School Dist., Lavaca and Matagorda Sts., Highlands Junior-Senior High School, Hi-Lions Park at Elgin and Patti Sts. $2,500,000. Plans deposit $50. Phelps & DeWees & Simmons, 342 W. Woodlawn St., archts. CD 7/18.

Minn., Balaton—SCHOOL—BA 10/3—Bd. Educ., E. A. Swenson, clk., high school. $500,000. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 3/8.

▲ **Minn., Golden Valley (P.O. Minneapolis)**—OFFICE—10/4—General Mills, Inc., 400 2nd Ave. S., Minneapolis, office bldg., 4 and 3-story sects., 180x265 ft. and 100x125 ft., total of 225,000 sq. ft. Wayzata Blvd. and County Hy. 18. $2,000,000. Plans deposit $50. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., archts. CD 2/28/55.

BUILDINGS—SLC

▲ **Tex., Beaumont**—SHOPPING CENTER—Gateway Shopping Center, c/o Irving R. Klein Assocs., archts. 1317 Austin St., Houston, soon lets contract main shopping center. $2,275,000. Walter P. Moore, 2 Pinedale St., Houston and J. W. Holland, 4209 Leeland St., Houston, engrs. CD 8/13.

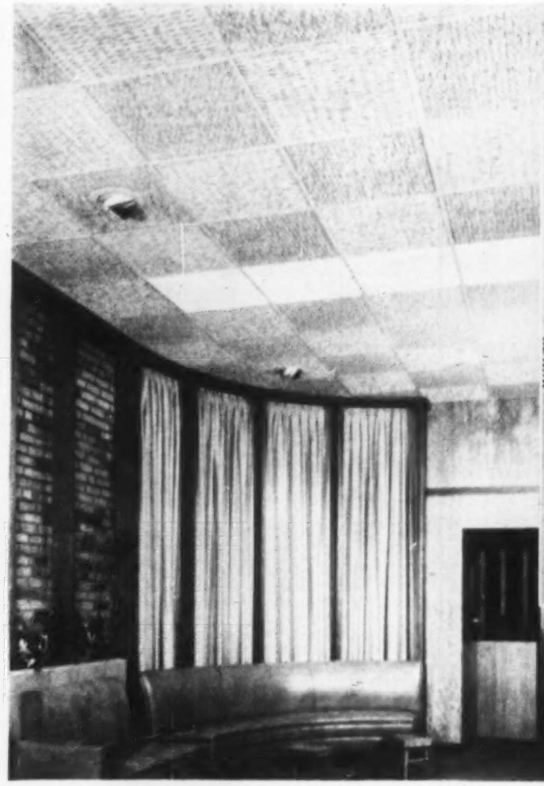
Tex., Dallas—HOSPITAL—Parkland Memorial Hospital, 5201 Harry Hines Blvd., soon lets contract hospital expansion, $925,000. Roscoe P. Dewitt, 4657 Mockingbird Lane, archt. CD 7/17.

Tex., Houston—CHURCH—First Baptist Church, 1020 Lamar, soon lets contract 4 story church and roof garden addn. $550,000. Plans deposit $35. J. W. Dehnert, 3815 Garrett, archt. Dale S. Cooper & Assocs., 3815 Garrett, and Jas. I. Stillman, 1510 Barbee, consult. engrs. CD 5/26.

Tex., Longview—CHURCH, etc.—First Methodist Church, c/o Bldg. Committee, soon lets contract church and children's bldg. $400,000. Wilson, Morris & Grain, 3330 Graustark, Houston, archts. CD 2/25/55.

Tex., Victoria—CHURCH, etc.—Most Rev. Rob. E. Lucey, Archbishop, 230 Dwyer Ave., San Antonio, soon lets contract church, school, rectory. $500,000. CD 8/14.

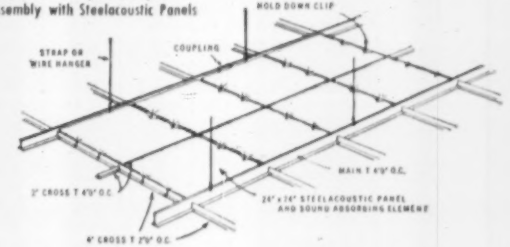
(Continued on page 164)



Interior of Gladstone Shoe Store, Grand Rapids, Michigan, with installation of new Acousti-Celotex Stria-Colored Steelacoustic Panels.
General Contractor: C. D. Barnes Associates.
Acousti-Celotex Contractor: Leggette-Michaels Co.

Corridor of Schuylerville School, Schuylerville, N. Y., showing Acousti-Celotex Steelacoustic* Panels on a T & T* suspension system.
Architect: Waasdorp & Northrup, Rochester, N. Y.
General Contractor: Christensen & Neilsen.
Acousti-Celotex Contractor: Collum Acoustical Co., Inc.

Celotex T&T Suspension System
Assembly with Steelacoustic Panels



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ACOUSTI-CELOTEX STEELACOUSTIC PANELS

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New Acousti-Celotex Steelacoustic Panels bring outstanding beauty, economy, and efficiency to a wide variety of commercial, industrial, and institutional areas. They combine high sound-absorption value with attractive and unusual ceiling design, providing a highly decorative appeal as they effectively arrest noise wherever installed.

Easy Maintenance—Acousti-Celotex Steelacoustic Panels require no special maintenance after installation. Efficient assembly of 24" x 24" Steelacoustic units on an exclusive T&T exposed grid suspension system permits simple removability of panels. This allows immediate access to above-ceiling space for servicing of ducts, wiring, and other utilities. Panels may be washed *repeatedly* and painted *repeatedly* without loss of sound-absorbing qualities. They are incombustible. Available in white and stria-colored green, brown, and black.

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(Continued from page 162)

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Minn.—**Ashbach Constr. Co.**, 1910 West County Rd. C, St. Paul, Minn. CA **$3,166,826**. grav. base, concrete base, concrete paving, plant mixed bit. surf., bridges and traffic signals 6.7 mi. Ramsey Co.;

Minn.—**Kimmes Constr. Co.**, Hastings, Minn. CA **$507,935**. grav. base, plant mixed bit. surf. 7.2 mi. between 0.8 mi. south of Minnesota City and Winona, Co. Bids Aug. 17. CD 8/24, under LB.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,

Ark.—**E. E. Barber Constr. Co., Inc.**, 722 Wheeler St., Fort Smith, Ark., CA, **$989,265**. wid'n., remodeling 2 bridges, US 70, near West Memphis, Crittenden Co.;

Ark.—**D. & W. Bridge Co.**, North Little Rock, Ark., CA, **$133,215**. 5 bridges totaling 600 ft. on State Hy. 79, Magnolia, Columbia Co. Bids Aug. 22. CD 8/14.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,

Ark.—**Southeast Constr. Co., Inc.**, 127½ Main St., Pine Bluff, Ark., CA, **$179,890**. resurf. 6 mi. US Hy 70, Hot Springs, Garland Co.; CA, **$535,376**. grading, 6 culverts, 2 bridges 16.3 mi. State Hy. 66 near Alco, Searcy and Stone Counties;

Ark.—**Reynolds & Williams, Inc.**, 3200 Brown St., Little Rock, Ark., CA, **$588,351**. wid'n., resurf. 11.4 mi. State Hy. 165 near Grady, Lincoln Co.;

Ark.—**Ben M. Hogan & Co., Inc.**, 1100 Fairview St., Little Rock, CA, **$199,062**. wid'n., resurf. 5.8 mi. State Hy. 65 near North Little Rock, Pulaski Co.;

Ark.—**D. F. Jones Constr. Co.**, Rector Bldg., Little Rock, Ark., CA, **$425,111** resurf. 103 mi. State Hy. 4, Omaha, Boone Co.;

Ark.—**R. H. Davis Contractor**, Stamps, Ark., CA, **$89,808** wid'n., blacktopping 3 mi. US Hy. 82 Stamps, Garland City, Waldo and Lewisville, Miller, Lafayette and Columbia Counties;

Ark.—**Bucton Constr. Co.**, Hazen, Ark., CA, **$329,458**. blacktop 7.6 mi. 300 ft. bridge on State Hy. 158, near Caraway, Graighead and Mississippi Counties. Bids Aug. 22, Grand total $2,347,056. CD 8/14.

Northern Imprvt. Co., 633 1st Ave. N., Fargo, N. D. LB **$839,000**. curbs, gutters, surfacing, FARGO, N. D. City, Fargo, N. D. Bids Aug. 21.

J. A. Shaw Constr. Co., 633 1st Ave. N., Fargo, and **Sornsin Constr. Co.**, 116 Roberts St., Fargo, N. D., LB **$549,000**. storm sewers, surface drainage, FARGO, N. D. City, Fargo, N. D. Bids Aug. 21.

† **Philip Davies**, Trenton, O., LB **$574,322** (6 bidders) Schedule A of outlet works gate frames and guides, Oahe Reservoir Proj., near Pierre, Inv. 25-066-57-2, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 23, CD 8/15.
Bennett Industries, Peotone, Ill., LB **$199,947**. Schedule B, Inv. 25-066-57-2 (South Dakota).

▲† **C. F. Lytle Co.**, 250 Insurance Exchange Bldg., Soux City, Iowa., LB **$1,259,962** (17 bidders) approach zone grading, Ellsworth Air Force Base, Inv. 25-066-57-6, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 23. CD 8/2.

Dobson & Robinson Constr. Co., 823 1st. Natl. Bank Bldg., Lincoln, Neb., LB **$509,750**, pipe lines in Ashland Well Field, LINCOLN, NEB. City, City Hall, Lincoln, Neb. Bids Aug. 22. CD 7/26;
Kelly Well Co., Grand Island, Neb., LB **$154,790**, wells, pumps, pump houses, Ashland Well Field (Lincoln, Neb.).

▲† **Peter Kiewit & Sons**, S.E. Station, Wichita 17, Kan., LB **$3,453,561**, est. $3,748,080, hydrant parking aprons, ENG-34-066-57-2, ALTUS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Aug. 15. CD 7/18.

M. A. Swatek & Co., 1137 N. W. 2 St., Oklahoma City 3, Okla. LB **$444,869**, est. $450,999. sanitary sewer mains, S. W. 50 and 56 Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Bids Aug. 21. CD 8/15.

TEXAS—Texas Turnpike Auth., 214 Federal Savings Bldg., Fort Worth,

Lee & Emmert, Engrs., 7602 N. Central Expressway, Dallas, Tex. CA **$688,000**. five toll stations, Dallas-Fort Worth Turnpike, Dallas and Tarrant Counties. Bids Aug. 14. CD 8/27, under LB.

† **C. W. Vollmer & Co., Inc.**, Lake Providence, La., CA **$843,650**, clearing Ferrells Bridge Reservoir area, both sides Cypress Creek, Marion, Norris, Upshur, Harrison and Camp Counties, CIVENG-16-047-57-1, TEXAS. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Aug. 8. CD 8/27, under LB.

Weldon C. Jordan, Box 184, Weatherford, Tex., LB **$486,390**, est. $800,000, earthen dam, Salt Creek, GRAHAM, TEX. City, Graham, Tex. Bids Aug. 21. CD 8/9.

Mitchell Darby Constr. Co., Box 169, McAllen, Tex. CA **$752,000**. sewage disposal plant, ODESSA, TEX. City, Odessa, Tex. Bids Aug. 21. CD 8/14.

Mitchell Darby Constr. Co., Box 169, McAllen, Tex. LB **$865,972**, est. $100,000 (7 bidders) sewage disposal plant, ODESSA, TEX. Odessa Butadiene Co., Odessa, Tex. Bids Aug. 21. CD 8/2.

▲ **Refinery Eng. Co.**, Wright Bldg., Tulsa, Okla., CA Est. **$2,000,000**. sewerage sys. at oil refinery to prevent waste water from going into North Platte River, incl. 947-acre reservoir, 2 mi. north of CASPER, WYO. Standard Oil Co. of Indiana, Casper, Wyo.

▲† **A. S. Horner Constr. Co. & Mid-Valley Utility Constructors**, 118 S. Pecos St., Denver, Colo. CA **$4,175,615**. flood control outlet, service and access roads, water supply and electrical sys. for Rio Chama Abiquiu Dam, CIVENG-29-005-56-17, NEW MEXICO. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 27. CD 7/6, under LB.

BUILDINGS—LB & CA

Kraus-Anderson, Inc., 501 S. 8th St., Minneapolis, Minn., CA **$450,000**. 1 story OFFICE and WAREHOUSE BLDG. Turners Crossroad, approx. 1 block north of Wayzata Blvd., GOLDEN VALLEY (Minneapolis P.O.), MINN. G. and L. Murray & J. Ridgway, 5009 Excelsior Blvd., Minneapolis, Minn. N. O. Nathan, 353 S. Dearborn St., Chicago, Ill., archt.

W. M. C., Inc., Winona, Minn., LB **$573,875** (3 bidders) HIGH SCHOOL addn. and remodel existing bldg., PLAINVIEW, MINN. Bd. Educ., H. Lance, clk., Plainview, Minn. Bids Aug. 23. CD 7/31.

J. D. Harrold Co., 405 E. Superior St., Duluth, Minn., CA, **$571,984** (7 bidders) general contr. JUNIOR HIGH SCHOOL addn., PROCTOR, MINN. Bd. Educ., J. Parmeter, clk., Proctor, Minn. Bids Aug. 14. CD 8/22, under LB.

† **Squire Electric Co.**, 1813 Grand St., Kansas City, Mo. CA **$544,444**, lighting and painting imprvs. U. S. POST OFFICE, KANSAS CITY, MO. General Services Admin., P. Bldgs. Service, 2306 E. Bannister Rd., Kansas City 14, Mo. Bids Aug. 2. CD 8/17, under LB.

Jax Constr. Co., 4833 Dodge St., Omaha, Neb. CA Est. **$700,000**. 46 DWELLINGS, Robin Valley Addn., OMAHA, NEB. Home Realty Co., 4833 Dodge St., Omaha, Neb.

Constant Constr. Co., Lawrence, Kan., CA **$619,975**, general constr. married students DORMITORIES, University of Kansas, LAWRENCE, KAN. State, Dpt. Admin., State House, Topeka, Kan. Bids Aug. 7. CD 8/17, under LB.

Anderson & House, 1627 W. Main St., Oklahoma City 3, Okla., CA **$511,000**. Garfield EXCHANGE addn., 2220 N. Missouri St., OKLAHOMA CITY, OKLA. Southwestern Bell Telephone Co., 405 N. Broadway, Oklahoma City, Okla. Parr & Aderhold, Whales Bldg., Oklahoma City, Okla., archts.

▲ **Knutson Constr. Co.**, 3803 S. Main St., Houston, Tex. LB **$1,645,092**, est. $1,410,000. SCIENCE BLDG., HOUSTON, TEX. Texas Southern University, 3201 Wheeler St., Houston, Tex. Bids Aug. 7. CD 7/19.

▲ **Baxter Constr. Co.**, 1404 Dunlavy St., Houston, Tex. CA **$1,317,900**. first sect. 1 and 2 story masonry HIGH SCHOOL, PASADENA, TEX. Pasadena Independent School Dist., Pasadena, Tex. Bids Aug. 20. CD 8/8.

▲ **Aluminum Co. of America**, 1501 Alcoa Bldg., Pittsburgh 19, Pa. Own Forces. **$11,000,000**. seventh POTLINE to increase aluminum production, POINT COMFORT, TEX.

Guido Bros. Constr. Co., 627 W. Martin St., San Antonio, Tex., CA **$647,500**, James Whitcomb Riley SCHOOL, SAN ANTONIO, TEX. San Antonio Independent School Dist., Lavaca and Matagorda Sts., San Antonio Tex. Bids Aug. 14. CD 8/23, under LB.

Leigland Co., South of Great Falls, Mont., LB **$524,385**, general constr. BANK, GREAT FALLS, MONT. First Montana Corp., Central Ave. and 4 St., Great Falls, Mont. CD 4/1/55.

▲ **U. S. Eng.**, 1709 Jackson St., Omaha, Neb., cancelled bids to have been opened Aug. 17, construct and finance Capehart permanent family HOUSING, Inv. 25-066-59-9, CAMP CARSON, COLO. CD 7/27.

▲† **Mead & Mount**, 1560 Denver Club Bldg., Denver, Colo., LB **$4,282,635**. 6 E.M. BARRACKS, ENG-25-066-56-95, CAMP CARSON, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids July 20. Low bidder withdrew bid. CD 7/27, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 19 California
STREETS AND ROADS
September 19 California

Calif., Santa Ana—BA 9/17—City, City Hall, 3rd and Main Sts., 7-MG First St. Plant reservoir and pumping plant, Spec. No. 2, $575,000. Plans deposit $25. James M. Montgomery, 15 N. Oakland Ave., Pasadena, consult. engr. CD 2/21/55.

BUILDINGS—BA

Calif., Cupertino—SCHOOLS—BA 9/18—Cupertino Union Elementary School Dist., c/o Supt., P.O. Box 155, Eisenhower Elementary School and the Garden Gate Elementary School, $810,000. Plans deposit $100. Clark & Stromquist, 321 Channing Ave., Palo Alto, archts. CD 5/7. and 4/25.

▲ **Calif., Richmond**—WAREHOUSE, etc.—BA 9/18—Safeway Stores, Inc., 366 Grand Ave., Oakland, 338,400 sq. ft. rein.-conc., grocery warehouse and truck repair shop, $1,500,000. Kaj Theill, 580 Market St., San Francisco, consult. engr. CD 8/24.

Calif., Suisun—SCHOOL—BA 9/19—Suisun School Dist., c/o Supt., school addns., incl. 5 classrooms, kindergarten, swimming pool, multi use room at Crystal Union Elemetary School, $400,000. Plans deposit $25. Mitchell Van Baurg, Claremont Hotel, Berkeley, archt.

Ont., Picton—HOSPITAL—BA 9/21—Prince Edward Co. Memorial Hospital, Bldg. Com., Box 70, Bloomfield, 2 story, 125x250 ft. steel joists, concrete slab floor, tile partitions 50 bed hospital. $600,000. Drevor & Smith, 81 Brock St., Kingston, archts. CD 6/12/53.

HEAVY CONSTRUCTION—LB & CA

▲† **Cen-Vi-Ro Pipe Corp.**, 8610 Atlantic Ave., South Gate, Calif., LB **$5,638,539** (5 bidders) earthwork, pipe lines, structures for Shafter-Wasco laterals and sublaterals; completion of laterals 134.4 and 137.2, sublaterals for lateral 134.4 feeder main, Shafter-Wasco Irrigation District, Friant-Kern Canal Distribution System, Central Valley Proj. Spec. DC-4732, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lindsay, Calif. Bids Aug. 23. CD 7/16.

† **George Pollock Co.**, Box 903, Sacramento, Calif., CA **$799,893**. Putah Diversion dam and Putah South Canal, Solano Proj. Spec. DC 4716, CALIFORNIA, Bureau Reclamation, Dpt. Interior, Winters, Calif. Bids Aug. 7, awarded Aug. 24. CD 8/14, under LB.

▲ **R. H. Fulton & Co.**, 2323 Erskin Rd., Lubbock, Tex., CA est. **$24,000,000**. 241 mi. 30 in. natural gas pipe line from Newhall to Colorado River near Needles, CALIFORNIA. Southern Counties Gas Co. of California and Southern California Gas Co., 810 S. Flower St., Los Angeles, Calif. CD 5/29.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Charles F. Harney, Inc., 575 Berry St., San Francisco 7, Calif., LB **$1,769,289** (6 bidders) 6-lane 2.1 mi. unit of Bayshore Freeway between 0.3 mi. south of Willow Rd. and 0.5 mi. south of San Mateo, 1 bridge, widen 2 bridges, pedestrian undercrossing, San Mateo and Santa Clara Counties. Bids Aug. 22. CD 7/30.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, Calif.—**Krull & Paschaeco** and **Close Building Supply, Inc.**, 721 C St., Hayward, Calif., LB **$826,651**. (5 bidders) grading, paving 1.2 mi. Sign Rte. 9, wid'n., concrete bridge, Alemeda Co.;

Calif.—**Jesse H. Harrison**, P. O. Box 315, San Ardo, Calif., LB **$89,731** (2 bidders) grading, surf. 0.2 mi. Sign Route 5, Skyline Blvd., installing drainage facilities, San Mateo Co. Bids Aug. 22. CD 7/30.

▲ **R. A. Watson Co.**, Box 747, North Hollywood, Calif., CA, **$1,732,703**. middle feeder pipe line from South San Gabriel to Garvey Reservoir, Spec. 498, MONTEREY PARK, CALIF. Metropolitan Water Dist., 306 W. 3 St., Los Angeles, Calif. Bids Aug. 9. CD 8/14, under LB.

BUILDINGS—LB & CA

▲† **U. S. Eng.**, 751 S. Figueroa St., Los Angeles, Calif., cancelled bids to have been opened Aug. 21, construct and finance family HOUSING, Yuma Test Station, ENG-04-353-57-2, YUMA, ARIZ., **$3,000,000**. CD 8/6.

J. Peterson, 5500 Coniston Rd., Seattle Wash., Day Labor, **$700,000**. 79 HOUSES, MOUNTLAKE TERRACE, WASH. CD 7/6.

J. Anderson Constr. Co., 115 S. 9 St. Tacoma, Wash., LB **$977,821**, general contract HIGH SCHOOL with shop and gymnasium, POULSBO, WASH. North Kitsap School Dist. 400, Poulsbo, Wash. Bids Aug. 22. CD 8/13.

J. & A. Constr. Co., 11324 Magnolia Blvd., North Hollywood, Calif., CA, **$541,236**. ELEMENTARY SCHOOL, ANAHEIM, CALIF. Magnolia School Dist., Anaheim, Calif. Bids June 4. CD 6/22, under LB.

Pringle Constr. Co., 2866 Hillside Dr., Burlingame, Calif., Owner Builds, **$500,000**. APARTMENT, Mills Estate, incl. swimming pool and courtyard, BURLINGAME, CALIF.

Charles F. Unger, 2210 Sutterville Rd., Sacramento, Calif., CA **$997,137**. Rio Tierra JUNIOR HIGH SCHOOL, Garden Land Area, DEL PASO HEIGHTS, CALIF. Grant Union High School Dist., 1400 Grand Ave., Del Paso Heights, Calif. Starks, Jozen & Nacht, Native Sons Bldg., Sacramento, Calif., archts. CD 8/8, under LB.

Kavanagh Building Co., 355 Fulton St., Fresno, Calif., CA **$784,000**. 112 HOMES, Griffith Park Subdivision, FRESNO, CALIF. Griffith Park Co-operative Inc., P. O. Box 1008, Fresno, Calif.

▲ **Whelan Constr. Co.**, 61 Renato Court, Redwood City, Calif. Owner Builds. **$1,000,000**. 3 story, 50,000 sq. ft. PROFESSIONAL BLDG. and 3 story, 24,000 sq. ft. MEDICAL BLDG., PALO ALTO, CALIF. Knorr Assoc., 720 Montgomery St., San Francisco, Calif., archt.

▲ **Bauer-Lesser**, 45 "B" St., San Mateo, Calif., Owner Builds, **$5,000,000**. 200-HOME SUBDIVISION, Heather Highlands, near SAN MATEO, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 19 British Columbia

BUILDINGS—BA

Ont., Mimico—SCHOOL—BA 9/13—Lakeshore Dist. Bd. Educ., 845 Lakeshore Rd., New Toronto, 2 story, steel, masonry school addn., **75x250 ft.** addn. to west side, 20x60 ft. addn. to south side. $400,000. Plans deposit $25. Horwood & White, 229 Yonge St., Toronto, archts. CD 8/9.

HEAVY CONSTRUCTION—LB & CA

▲ **Poole Constr. Co. Ltd.**, 2402 2 A St. S.E., Calgary, Alta., LB **$1,957,000**. sewage treatment plant extens., CALGARY, ALTA. City, Civic Block, Calgary, Alta. Bids Aug. 2. CD 7/19.

General Constr. Co. (Alberta) Ltd., 2 St. and 3 Ave., Lethbridge, Alta., LB **$923,523** (2 bidders) new 6,500x200 ft. asph. or concrete runway, airport imprvs., LETHBRIDGE, ALTA. Dpt. Transport, Hunter Bldg., Ottawa, Ont. (**Correction**—cost). CD 8/16, under LB.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

General Constr. Co. Ltd., Granville Island, Vancouver, B. C., and **Pacific Bridge Co.**, 256 Montgomery St., San Francisco, Calif., U.S.A., LB **$4,743,885** (2 bidders) Contract 2, Kelowna bridge, involving floating structure, piers and abutments, Okanagan Lake at Kelowna. Bids Aug. 16. CD 8/2.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

Ben Ginter Constr. Co. Ltd., Prince George, B. C., CA **$1,039,673**, Proj. 779, 11.85 mi. Northern Trans-Provincial Hy., Lamming Mills West. Bids Aug. 3, awarded Aug. 22.

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

John McIsaac Constr. Co. Ltd., Whitehorse, Y. T., LB **$937,404** (2 bidders) reconstr. section of Northern Trans-Provincial Hy. between Blackwater Rd. and Sweden Creek. Bids Aug. 22. CD 8/16.

United Dredging Ltd., c/o Angus Robertson Ltd., 5035 Western Ave., Montreal, Que., CA **$735,000**. dredging BAIE DU MOULIN, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

▲ **Williams & Williams (Eastern) Ltd.**, West St., Trenton, Ont., and 1437 MacKay St., Montreal, Que., LB **$1,692,058** (7 bidders) supplying, erecting curtain wall and fixed glass assemblies for air terminal bldg., Montreal Airport, MONTREAL, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 9/1/54.

BUILDINGS—LB & CA

Dominion Constr. Co., Ltd., 10117 111 St., Edmonton, Alta., CA **$750,000**. 1 story, 100,000 sq. ft. rein.-conc. GROCERY WAREHOUSE, 125 Ave. near St. Albert Trail, EDMONTON, ALTA. Macdonalds Consolidated Ltd., Edmonton, Alta. Awarded Aug. 22.

▲ **B. C. Bridge & Dredging Co. Ltd.**, 1500 W. Georgia St. Vancouver, B. C., CA **$1,500,000**. DISTRIBUTING DEPOT, incl. pack house, offices, shops, 4 silos and dock. BAMBERTON, B. C. B. C. Cement Co. Ltd., Bamberton, B. C. Read, Read, Jones, Christoffersen, 1161 Melville St., Vancouver, B. C., engrs. Awarded Aug. 24.

▲ **Dominion Constr. Co. Ltd.**, 195 W. 2 Ave., Vancouver, B. C., CA **$1,000,000**. 1 story, 155,000 sq. ft., rein.-conc. GROCERY WAREHOUSE, BURNABY, B. C. Canada Safeway Ltd. 840 Cambie St., Vancouver, B. C. Awarded Aug. 23. CD 3/4/53.

▲ **David Gallo Constr. Co.**, 10 Norsman Ave., Toronto, Ont., CA **$1,000,000**. FACTORY, 10-acre site half mile west of here, near Queen Elizabeth Way, OAKVILLE, ONT. Modern Distributors Ltd., 267 Wellington St. W., Toronto, Ont. Awarded Aug. 22.

▲ **Bennett-Pratt Ltd.**, 5 Maple Leaf Dr., Weston, Ont., LB **$1,002,883** (4 bidders) 2 story, part bsmnt., H-shaped, 110x360 ft., King Edward Composite SCHOOL replacement, TORONTO, ONT. Bd. Educ., 155 College St., Toronto, Ont. Bids Aug. 2. CD 7/19.

▲ **Louis Donlo (Ontario) Ltd.**, 2790 Dufferin St., Toronto, Ont. CA **$3,651,461** (5 bidders) low-cost housing, incl. three 14 story, rein.-con. high-rise apartment bldgs., Regent Park South, TORONTO, ONT. Central Mortgage & Housing Corp., 40 Eglinton Ave. E., Toronto, Ont. Bids Aug. 2, awarded Aug. 22. CD 7/17.

▲ **A. N. Bail Co. Ltd.**, 1440 St. Catherine St., W., Montreal, Que., LB **$1,760,000**. (9 bidders) 2 story, bsmnt., rein.-con. structural steel for second story bldg. for Pulp & Paper RESEARCH INSTITUTE of Canada at Pointe Claire, MONTREAL, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Aug. 22. CD 7/24.

A. E. Poole Constr. Corp. Ltd., 29 Allard Ave., Dorval, Que., Owner Builds, **$750,000**. 50-unit HOUSING, "River Heights," STE. GENEVIEVE, QUE.

ALASKA

HEAVY CONSTRUCTION—LB & CA

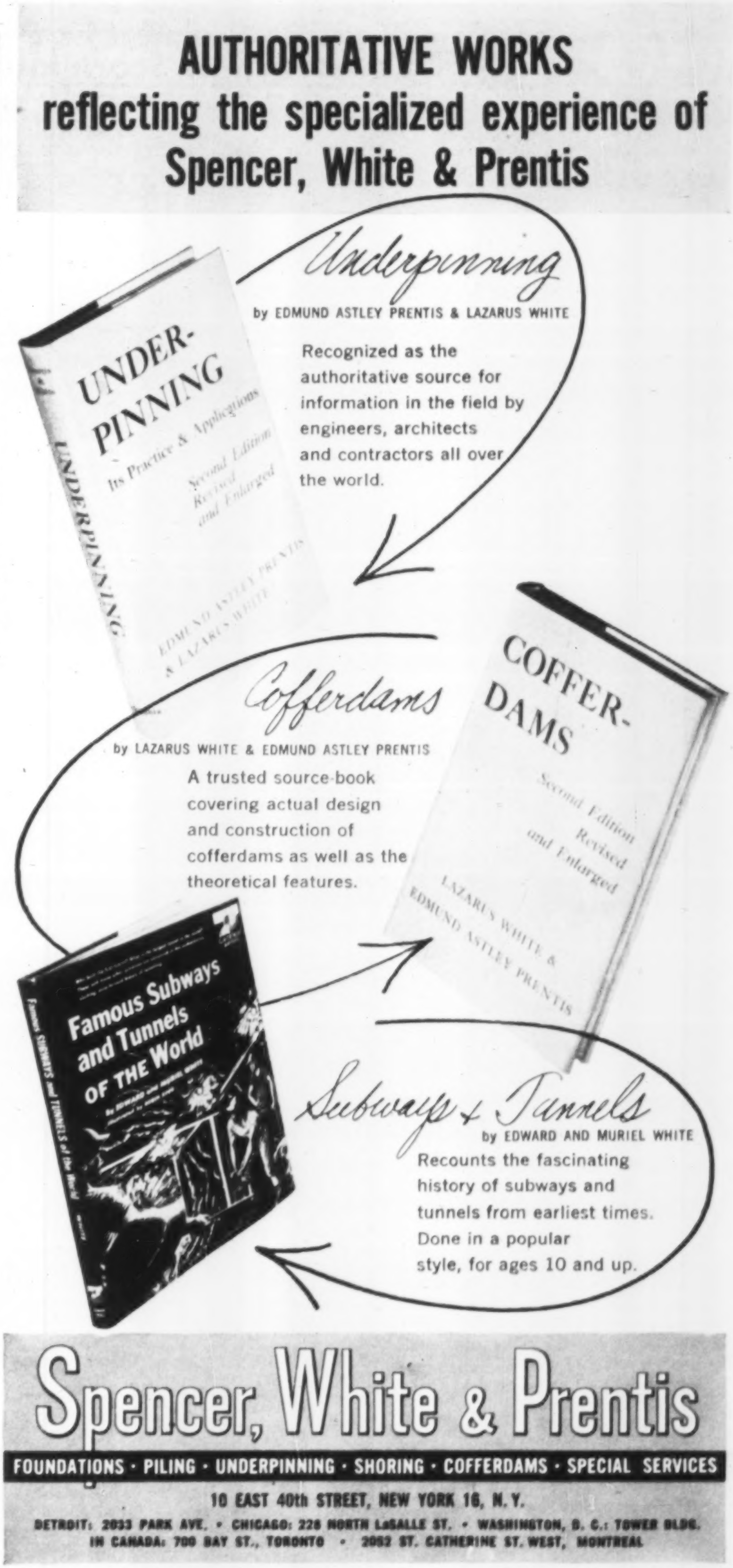
† **Gaasland Co.**, 1155 Ellis St., Bellingham, Wash. CA **$875,000** est. $696,610, White Alice communication facility at Indian Mountain, Inv. 57-15, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 19.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Brown & Blauvelt**, 468 Fourth Ave., New York, N. Y., U. S. A., CA Est. **$25,000,000-$50,000,000**. design and construct, Riyadh-Medina-Jeddah Railway, SAUDI ARABIA. Ministry of Finance & National Economy, Jeddah, Saudi Arabia. Bids Aug. 12. CD 2/17.

(Proposal Advertisement see pp. 178 to 181)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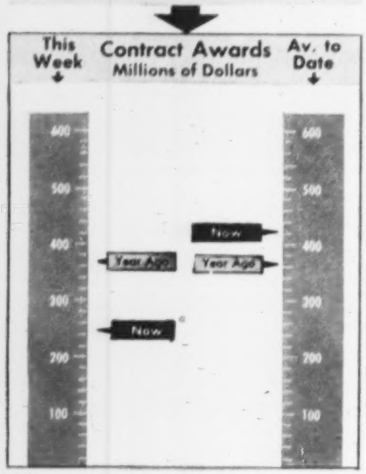
Construction Scoreboard

Activity this Week



*4 days

AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 36 wks 1956	Cum. 36 wks Chge %
	$ millions		
Federal	$33.8	$1,218.9	+2
State and Municipal	97.2	4,497.8	+21
Total Public	131.0	5,716.7	+16
Total Private	112.9	9,554.4	+18
U. S. Total	$243.9	$15,271.1	+17
By Type of Work			
Waterworks	$4.5	$249.6	+34
Sewerage	6.2	413.0	+56
Bridges	9.8	418.9	+27
Highways	45.6	1,699.6	+12
Earthwork, Waterways	13.9	532.1	+47
Buildings:			
Public, Excl. Housg.	41.7	1,426.6	+18
Public Housing	3.0	221.0	+3
Private Housing	61.2	4,032.1	−8
Commercial	18.2	1,233.2	+3
Industrial	32.4	3,820.1	+101
Unclassified	7.4	1,224.9	−18
U. S. Total	$243.9	$15,271.1	+17

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

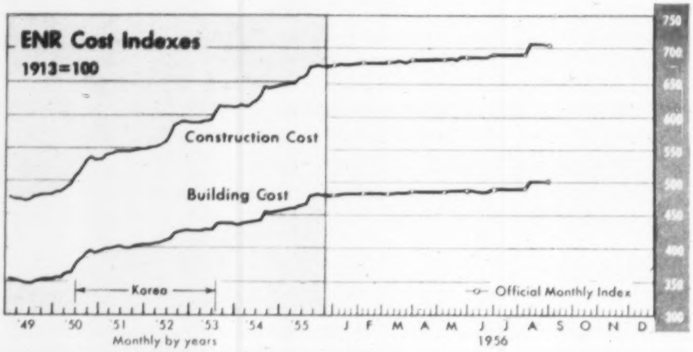
	Week of Aug. 30	Cum. 35 wks 1956	Cum. 35 wks Chge '55-'56
	$ millions		%
Corporate Securities	$27.6	$3,148.9	+40
State and Municipal:			
All Except Housing	45.3	3,088.0	+9
Housing	...	42.3	−41
Federal Loans	2.7	125.8	+43
Federal Aid	...	1,070.0	+25
Total Nonfederal	75.7	7,474.9	+23
Federal Appropriations:			
In U. S.	...	3,460.3	+2
Outside U. S.	...	15.9	−81
Total New Capital	$75.7	$10,951.1	+11

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Aug. 30, 1956	% Change from Aug. 2, 1956	% Change from Sept. 1, 1955
Construction Cost	704.91*	+1.2	+4.8
Building Cost	500.10*	+1.8	+4.4

* Official Monthly Index for September.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.845.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



WAGE RATES, 20-cities' average

	Sept. 1956	% Change from August 1956	% Change from Sept. 1955
Common	$2.192	0	+5.0
Skilled (average 3 trades)	3.416	+0.1	+4.4
Bricklayers	3.688	0	+4.7
Structural Ironworkers	3.391	+0.2	+3.9
Carpenters	3.169	+0.1	+4.5

MATERIAL PRICES, 20-cities' average

	Sept. 1956	% Change from August 1956	% Change from Sept. 1955
Structural Steel (average 3 mills), per cwt	$5.000	+8.7	+8.7
Lumber, 2x4 Fir, per M fbm	118.750	−1.2	−2.2
Lumber, 2x4 Pine, per M fbm	104.200	−1.2	+3.7
Cement, bulk, per bbl	3.720	−0.3	+4.6
Sand, per ton	2.428	+0.2	+2.4
Ready-mixed concrete, per cu yd	13.430	+0.7	+6.6

ENR INDEX REVIEW

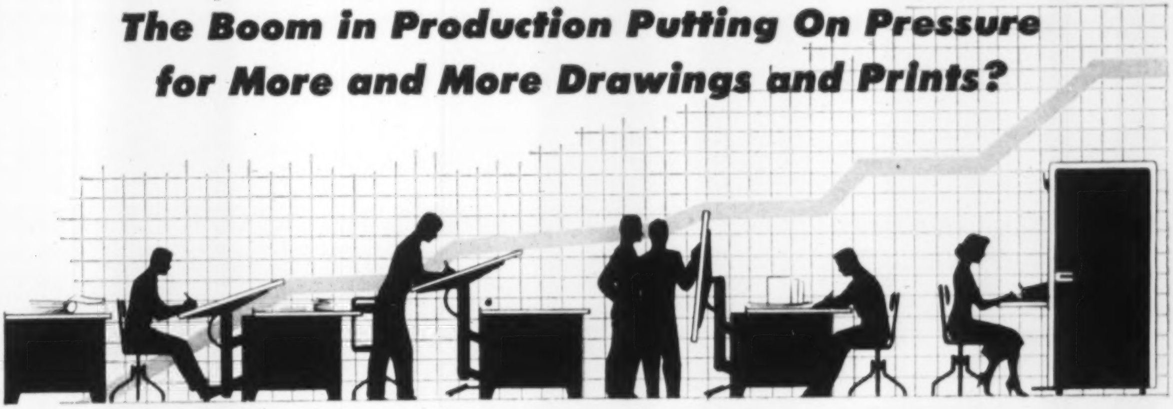
	Construction Cost 1913 = 100	Construction Cost 1949 = 100	Building Cost 1913 = 100	Building Cost 1949 = 100	Volume 1913 = 100	Volume 1949 = 100
1955						
Sept.	672.74	141.03	479.15	136.20	576	166
Oct.	673.89	141.27	479.99	136.44	628	182
Nov.	673.20	141.13	479.30	136.25	561	162
Dec.	673.13	141.11	478.70	136.08	544	157
1955 Av.	659.72	138.31	468.80	133.33	600	173
1956						
Jan.	676.36	141.79	480.48	136.58	645	186
Feb.	680.21	142.59	483.08	137.32	736	213
Mar.	680.20	142.59	483.14	137.34	786	227
Apr.	683.28	143.24	485.56	138.02	764	221
May	688.43	144.32	487.36	138.54	684	198
June	692.13	145.09	488.70	138.92	636	184
July	694.75	145.64	489.23	139.07	740	214
Aug.	696.31	145.97	491.22	139.63	583	168
Sept.	704.91	147.77	500.10	142.16	....	....

MATERIAL SHORTAGES

- **Stainless steel sheets**—Short in Birmingham, Boston, Denver, Minneapolis, New York, Philadelphia, San Francisco, Montreal. Deliveries in New York quoted at 12 weeks; Philadelphia, 90 days. Supply situation eased at Kansas City for small amounts, but 30 days required for deliveries of 10,000 lbs or more.
- **Aluminum building sheets, flat**—Short in Boston, Denver, New Orleans, Montreal, Toronto. Boston suppliers are taking care of customers who ordered long ago, giving no promises to others. Toronto's supplies are allocated.
- **Brick**—Short in Birmingham, Los Angeles, Toronto. Delivery time eased in Los Angeles to 14 days from 60-90 days; raised in Toronto to 21-30 days.

For ENR cost indexes for preceding years see insert chart ENR Sept. 29, '55. Extra copies 50 cents.

The Boom in Production Putting On Pressure for More and More Drawings and Prints?



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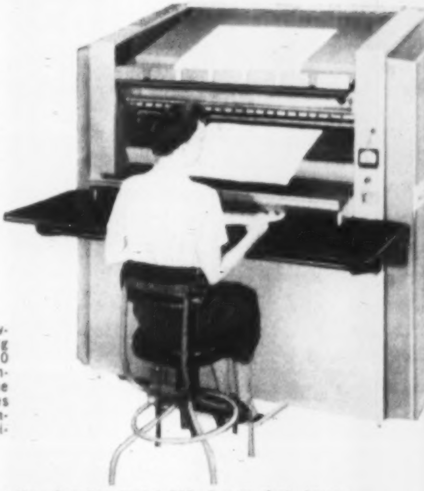

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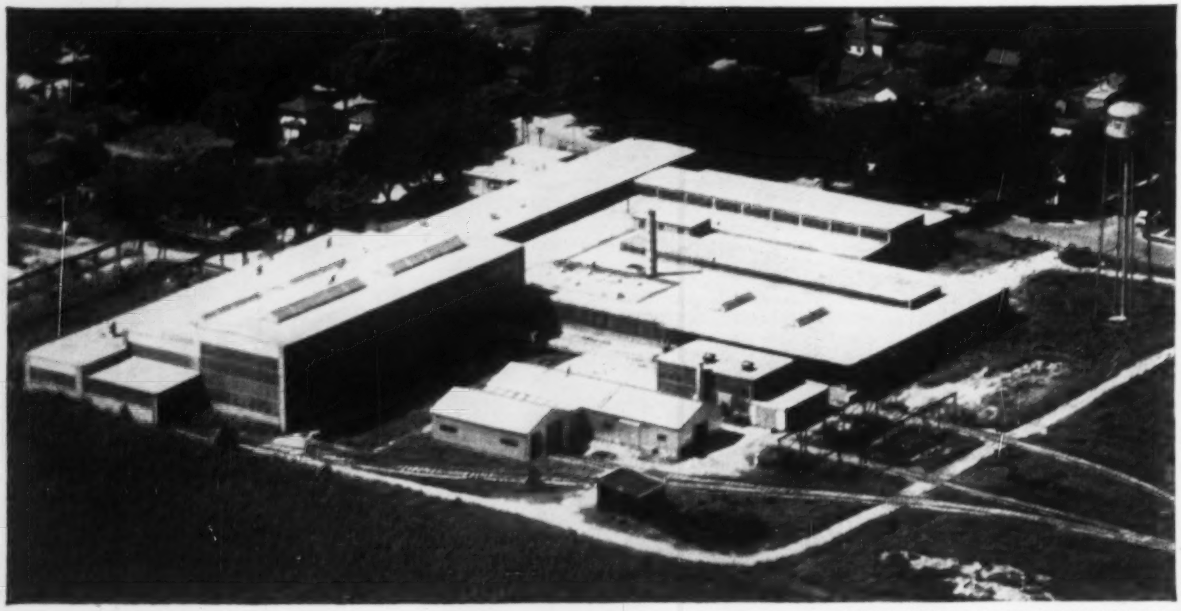
Midwest Prestressed Concrete Co. Acquires Largest Prestressed Concrete Plant in Illinois



AERIAL VIEW OF PLANT AT ROCHELLE, ILL.

$750,000 EXPANSION PROGRAM NEARING COMPLETION

The Midwest Prestressed Concrete Company of Springfield, Illinois has purchased the largest prestressed concrete plant in Illinois. The property, located at Rochelle, Illinois, contains 16 acres of which 127,800 square feet are under one roof. The building itself is of steel and masonry, and adequately lighted for round the clock operations. It is equipped with 6 overhead cranes with capacities of from 5 to 50 tons each, 2-125 H.P. low-pressure oil-fired boilers, a 1000 C.F.M. air compressor with complete air distribution throughout the plant.

Material handling, storage and batching equipment has been installed, and the stress beds and incidentals are in the construction stages with a completion date sometime in September. There is in excess of 2000 feet of trackage inside the yard with connections to C.& NW., C. M. St. P. & P. and C.B. & Q. railroads. The plant is located at the intersection of U.S. Route 30 Alternate and 51.

This new plant will be in addition to the plant now operating in Springfield, where Midwest started operations in 1953, but will have a capacity of many times that of the present plant. Midwest has been a pioneer in the prestressed concrete field in Illinois, and its personnel are well founded in the growth, production and design development of the industry.

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Housing Awards Set August Record

Weekly average for total contracts 18% over August. Sewerage, earthwork, highways gain; industrial slow

Private mass housing contract awards set a new August record of $628 million and helped to lift total awards for heavy construction to $1.8 billion—the second best August since 1952.

Although the average weekly rate for August contracts was down 20% from July, it was a bouncy 18% ahead of August, 1955.

Housing staged its August comeback with some substantial support from large scale housing developments.

Michigan reported an $80-million mass housing project. New Jersey contributed a $40-million project and a 25-million development. And, Virginia added two that were noteworthy, one for $12 million and the other for $10.5 million.

Led by these major projects, the influx of housing contracts narrowed the gap between last year's record awards and this year's total. On a year-to-date basis, mass housing contracts trailed 1955 by 12% at the end of July. Now, at the end of August, housing awards are only 8% under the comparable 1955 figure.

Sewerage contracts rolled up an impressive score in August, with $60.7 million reported. At the end of August, awards for sewerage projects had raced 56% ahead of 1955 on a cumulative eight-month basis.

Earthwork and waterways also sailed along well ahead of July and also above August, 1955. Awards in this category are 49% above 1955 at the end of the first eight months.

Highway contracts are picking up. August awards jumped 14% ahead of August, 1955.

Industrial building contracts dipped to the lowest weekly average of the year despite such major projects as the $58-million electric generating plant for Indiana; a $25-million aluminum plant in Alabama and a $20-million missile research plant in California.

The "dip" in industrial building deserves a closer look. While awards were down 62% from July, they were still 4% above August, 1955. And, the eight-month cumulative total for industrial building contracts is sensational. With nearly $3.8 billion worth of industrial building work signed up by the end of August, this category is a fabulous 101% ahead of last year.

Commercial building contracts edged down 4% from July. But the $138 million total for August was 16% ahead of the same month last year.

Even though the slump in mass housing this year has trimmed down some of the growth in commercial building (because of the relationship of mass housing to shopping centers), the eight-month cumulative total is slightly ahead of last year on an average-week basis.

Awards fell sharply in August for federal construction and for state and municipal work.

Steel Rise Takes Its Toll: Cost Indexes Hit New Highs

The $8-per-ton increase in the base mill price of structural steel this month sent ENR's building and construction cost indexes soaring to new highs.

From 696.31 at the beginning of August, ENR's 20 Cities Construction Cost Index jumped 10 points to 706.38 and the Building Cost Index rose from 491.22 to 501.29 (both indexes are based on 1913 equals 100).

But before the end of August, a softening of lumber prices began nib-

Engineering Construction Contracts August 1956

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000*

Five Weeks—Thousands of Dollars (000 Omitted)

	August, 1956							U. S. Cumulative Eight Months		% Change	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1956 (35 weeks)	1955 (34 weeks)	'55 to '56 Av. Wk.	August 1956
Public Works											
Waterworks	246	4,893	4,954	9,894	7,591	1,720	29,298	245,156	177,733	+33	4,089
Sewerage	5,513	16,735	9,643	12,003	8,651	8,146	60,691	406,940	252,783	+56	4,410
Bridges	7,799	2,879	6,831	18,962	9,790	3,253	49,514	404,940	309,579	+27	5,738
Earthwork and waterways	1,761	2,774	3,828	919	19,814	23,177	52,273	518,112	338,499	+49	8,771
Streets and roads	14,252	27,767	48,987	53,791	70,804	37,190	252,791	1,653,918	1,427,914	+12	5,281
Public buildings, residential	498	648	....	426	2,459	518	4,549	217,842	183,152	+16	5,362
Other public buildings	14,100	42,486	15,630	41,801	33,856	36,317	184,190	1,384,901	1,161,427	+16	24,232
Unclassified	2,522	10,673	6,241	5,797	14,529	11,207	50,969	753,945	823,199	−11	4,684
Total public	**46,691**	**108,855**	**96,114**	**143,593**	**167,494**	**121,528**	**684,275**	**5,585,754**	**4,674,286**	**+16**	**62,567**
Federal government (included in above classifications)	2,395	7,300	14,362	2,632	32,181	20,005	78,875	1,185,170	1,166,721	− 3	17,197
Private											
Bridges	....	....	....	....	....	....	....	4,404	1,708	+152	....
Industrial buildings	9,884	56,139	36,408	104,690	49,658	51,577	308,356	3,787,619	1,837,970	+101	42,872
Mass housing	10,013	257,090	41,613	135,045	150,317	33,597	627,675	3,971,119	4,175,067	− 8	12,172
Commercial buildings	8,966	63,966	3,400	25,885	20,232	15,979	138,428	1,215,036	1,131,202	+ 4	5,276
Unclassified	599	2,773	7,713	2,179	30,367	26,097	69,728	463,261	527,739	−15	154,467
Total private	**29,462**	**379,968**	**89,134**	**267,799**	**250,574**	**127,250**	**1,144,187**	**9,441,439**	**7,673,686**	**+20**	**214,787**
Total Engineering Construction:											
August, 1956—(5 weeks)	**76,153**	**488,823**	**185,248**	**411,392**	**418,068**	**248,778**	**1,828,462**	....	....	....	**277,354**
July, 1956—4 weeks	105,933	235,825	339,378	491,077	400,927	262,278	1,835,418	....	....	....	302,643
August, 1955—4 weeks	58,515	176,498	111,674	402,721	359,313	130,947	1,239,668	....	....	....	132,238
Eight Months—1956	**827,423**	**3,861,023**	**1,673,740**	**3,246,077**	**3,232,971**	**2,185,959**	....	**15,027,193**		**+18**	**1,657,708**
Eight Months—1955	609,564	3,388,323	1,288,647	2,777,240	2,894,744	1,389,454	....	....	12,347,972	....	1,119,624
%Change '55 to '56 (Av. Wk.)	+32	+11	+26	+14	+8	+53	....	....	....	....	+44

bling away at the new peaks, so that September opened with the Construction Cost Index at 704.91 and the Building Cost Index at 500.10. This was a net gain for the month of 1.2% and 1.8% respectively.

Construction costs are now 4.8% above a year ago; building costs, 4.4% above the comparable 1955 mark.

During the month, fir prices continued to weaken. They now average $118.75 per mftbm at ENR key wholesale centers, as against the May high of $123.17.

Southern pine prices also are showing signs of wavering after a series of successive advances carried the price to $105.53 per mftbm in July. Current quotations average $10.20, off 1.2% from a month ago.

Skilled wages increased during the month in Dallas and Los Angeles, bringing the 20-cities average 4.4% above last year.

There were no changes during the month in common labor rates in any of the 20 major cities covered in the ENR indexes. The current level of common labor rates is 5% higher than last year.

Cement prices edged down fractionally, but the present price level is 4.6% above September, 1955. And, higher cement prices seem to be on the way. Two companies already have reported plans to raise their prices 15 cents a barrel in the third quarter.

Credit Squeeze

Municipal bond sales lag after record first half

After shooting to a new record in the first half of this year, state and municipal bond sales for construction have turned down.

Last week's state and municipal bond issues, totaling $45.3 million, brought the aggregate for the first nine weeks of the second half to $547 million, 10% below the comparable 1955 period.

This is a direct reflection of the weakened bond market and the steady climb in interest rates.

The tight money market has led to the postponement of many bond sales scheduled by states and municipalities.

For the first time since mid-year, business took some of the pressure off the capital market last week.

The volume of corporate securities marketed to finance construction fell to $27.6 million, the lowest weekly volume since February.

Some Materials Now Short

Aluminum and stainless steel building sheets join list of hard-to-get items; cement, insulation supplies good

Stainless steel building sheets are now in short supply in seven key U. S. cities and in one major city in Canada, and five cities report shortage of aluminum building sheets.

Shortages of stainless steel building sheets have cropped up in Birmingham, Boston, Denver, Minneapolis, New York, Philadelphia, San Francisco and Montreal.

New York suppliers quote a 12-week delivery wait for this item; shipments take 90 days in Philadelphia. Kansas City's supply situation is easier now for small orders, but deliveries of 10,000 pounds or more take 30 days.

Flat aluminum building sheets are short in Boston, Denver, New Orleans, Montreal and Toronto. Boston suppliers are filling earlier orders but are not making any new commitments. Toronto's supply is allocated.

Two cities, Denver and Montreal, also report a shortage of aluminum corrugated roofing.

Structural clay tile is short in Atlanta and Birmingham.

Brick shortages are reported in Birmingham, Los Angeles and Toronto. The supply situation is beginning to improve in Los Angeles, where delivery times have been reduced substantially. But Toronto's supply is getting tighter.

Aside from these scattered shortages—and the widespread and seemingly endless shortage of structural steel—most other building materials are in adequate or even plentiful supply.

Contractors apparently have had no trouble getting lime, ready-mixed paint, roofing rolls, plaster or vermiculite, for example.

• **Road supplies plentiful**—Most of the key construction centers in the U. S. and Canada now report that they have good stocks of cement, aggregates and road surfacing materials.

In part, this reflects a temporary easing of demand because of projects that have been delayed waiting for steel shipments.

There are some exceptions to this generally good supply situation.

Denver and Toronto have cement shortages. There's a "slight shortage" in Baltimore. Chicago's supplies are still rated "adequate" but there has been some tightening. Ready-mixed concrete is getting a little short in Chicago.

A shortage of crushed slag in Baltimore and Birmingham is expected to improve as steel mills get back to full operations.

• **Insulation products easier**—The tight money market may have brought mixed blessings by forcing a downturn in housing. It has eased demand for some materials, especially insulation products like gypsum and fiber board.

Only Baltimore reports a shortage of gypsum plasterboard, lath and sheathing, and fiber board is short only in Baltimore and Montreal.

Mortgage Purchases Soar As Money Market Tightens

The Federal National Mortgage Assn., popularly known as Fannie Mae, has proved once again that it is mortgage market's best friend.

The agency, which closed it books June 30 for the fiscal year 1956, reported that it purchased 23,422 residential mortgages through its secondary market operations in the course of the year—with a sizeable chunk of the total coming in the last three months of the fiscal year.

The sharp increase in mortgage purchases under the the secondary market operations program is illustrated by the 15,113 mortgages bought during the January through June period, against only 1,173 bought in the previous six months.

During the first half of the 1956 fiscal year, the agency purchased mortgages with a total value of $9.4 million. During the second half, purchases rocketed to $152 million.

The trend is still continuing. J. Stanley Baughman, the program's administrator, commented:

"We are now buying more mortgages in a week than we did in six months in the early days of the program. This, of course, is principally due to the continuing tight residential mortgage market."

Fannie Mae's report turned up another interesting point: mortgages are getting larger. This was attributed to larger, higher-priced homes built in the period from July 1, 1955 to June 30, 1956.

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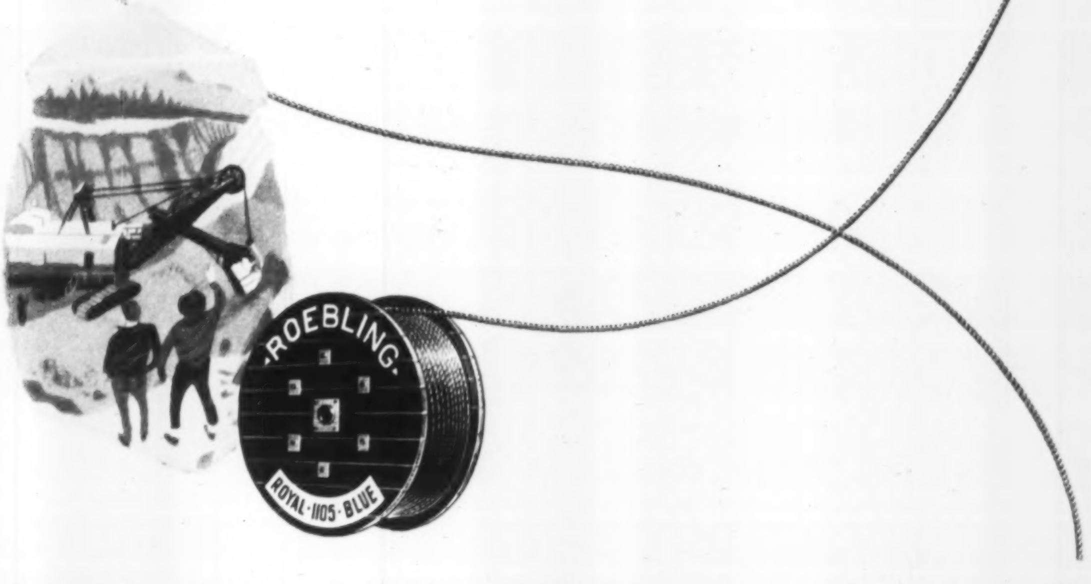

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Olin, Revere Form Aluminum Company

A new corporate venture last week promised the construction industry some insurance against sporadic aluminum shortages.

Olin Mathieson Chemical Corp. and Revere Copper and Brass, Inc., announced formation of a jointly-owned $231 million company that will produce 180,000 tons of primary aluminum a year.

The two firms will own the Olin Revere Metals Corp. on a 50-50 basis. But the parent companies also turn up as the best customers.

Olin Mathieson has contracted with Olin Revere to buy 120,000 tons of primary aluminum a year (on a long-term basis). Revere has a similar contract to buy 60,000 tons a year. Since the new firm's output is slated to be 180,000 tons a year, it will apparently be able to sell everything it makes to its owner-customers.

For Olin Mathieson, the new setup means a much greater supply of primary aluminum fabricating facilities, at a lower cost per ton. For Revere, the deal means that the firm will now have its own source of primary aluminum. This is a big advantage for Revere because it has been in the fabricating business since 1922 and is the largest non-integrated fabricator of wrought aluminum in the U. S.

• More metal for everyone—For construction, the Olin Revere venture will add substantially to the total output of aluminum, and will make more available for building products.

When Olin Mathieson announced in January that it was going into the primary aluminum business, its plans called for total output of 60,000 tons of aluminum per year. Now, under the Olin-Revere setup, production will be 180,000 tons a year, three times the original plan.

The new company will also be a good customer for construction. Facilities will include:

- An alumina plant with a capacity of 350,000 tons per year.
- A reduction plant with 180,000 tons per year capacity.
- Two 225,000-kw generating units in a power plant at Cresap, W. Va.

The alumina plant will be built somewhere on the Gulf Coast.

The reduction plant will involve a three-fold expansion of the 60,000 ton a year facility now under construction near Clarington, Ohio.

Power facilities will be handled by a new wholly-owned subsidiary of Olin Revere. This subsidiary will own two 225,000-kw generating units at Cresap, W. Va. The units will supply power to the reduction plant. A third 225,000-kw unit at the power plant will be owned by Ohio Power Co. All three units will be operated by Ohio Power.

• Who puts up the money?—To finance the new corporation, Olin Revere is getting a $100 million bank loan and is selling $100 million in first mortgage bonds to a group of life insurance companies.

The parent companies will provide the remaining $31 million through equal purchases of common stock and subordinated debentures.

To help tide the new venture over the early years, the Office of Defense Mobilization has transferred to Olin Revere certificates of necessity for fast tax amortization originally granted to Olin Mathieson.

Morrison-Knudsen Reports Work Load Up, Income Down

One of the giants of the construction industry, Morrison-Knudsen reported that its volume of completed work was up for the first half of this year, but net income was down from the year-ago figure.

M-K and its domestic subsidiaries completed $97.8 million worth of work in the first six months of this year, as against $66.2 million for the same period in 1955.

The firm's foreign subsidiaries completed $63.5 million worth of construction in the first half, well above the $42 million completed in the first six months of last year.

Despite this volume of work, however, Morrison-Knudsen's net income fell to $1.9 million, as against $2.5 million for the first half of 1955.

M-K has some busy days ahead. Backlog of uncompleted contracts for the parent company and its U. S. subsidiaries totalled $375 million at the end of June. The backlog of foreign work climbed to $139.3 million.

Business Briefs . . .

• Atoms for Alaska—The Atomic Energy Commission approved negotiation of limited initial design and development for a nuclear power reactor system at Anchorage, Alaska. It will be a joint project of Chugagh Electric Assn., of Anchorage, and Nuclear Development Corp. of America, White Plains, N. Y. Total cost: $18 million.

• Split-level crosses the Atlantic—The split-level home will be introduced in England. It's one result of the British homebuilders' tour of the U. S. The British split level, to be built in Leicester, will follow the design of a seven-room, $15,000 house.

• Certain-Teed sales drop—Another supplier is showing the effects of the housing slump. Certain-Teed Products Corp. reported that sales for the first six months totaled $33.5 million, down $1.5 million from the same period in 1955.

• Caterpillar buys supplier—Caterpillar Tractor Co., has acquired Englehart Mfg. Co., of Davenport, Iowa. The firm has been a major supplier of parts to Caterpillar for 13 years.

• Voters reject bonds—Voters turned thumbs down on more state and municipal bond proposals than they approved in July. Among those rejected were a $54 million road bond proposal for North Dakota and a $50 million farm and home loan plan for Oklahoma veterans.

• Alabama industry—More than $300 million was spent in Alabama in the first six months for industrial building, according to Lewis M. Pick, state director of industrial planning. Of the total, $54 million went into new plant; $248 million, was spent for expansion of existing facilities.

• Canadian subsidiary—A major U. S. cement producer, Ideal Cement Co., will start a Canadian subsidiary, Ideal Cement Co., Ltd., to tap the booming construction market in Canada.

• Try again—With some urging from the State Securities Commission, the Florida legislature repealed a 1955 law that authorized creation of development credit corporations to provide risk capital for industrial expansion. The Securities Commission charged the law had too many loopholes in it, asked for a similar measure—but more carefully drawn.

• Package plan—The Jersey Central Railroad plans to develop a 250-acre industrial park in Denville and Rockaway Township, New Jersey. Industries will be offered a package deal with site selection, plant layout, design, construction and financing handled under a single operation.

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Labor

NLRB and Craft Disputes

A New Jersey problem again raises the question of how deep the board should go into jurisdictional disputes

The long-standing jurisdictional dispute between lathers and carpenters over acoustical ceiling work is on the judicial merry-go-round again.

This time it's in New Jersey, where the U. S. District Court last week ordered one carpenter and three lather locals to stop interfering through strikes or work stoppages with work assignments made by their employers until the National Labor Relations Board has heard and disposed of the dispute. Next Monday, the NLRB will open its own hearings in what is known as a Section 10(K) proceeding.

Although the dispute itself is far from unique, the case significantly points up the principal weaknesses of existing laws and procedures for handling jurisdictional disputes, and represents another attempt to patch up the holes left by spot decisions of the National Joint Board for the Settlement of Jurisdictional Disputes and by the principal of voluntarvism on which their enforcement depends.

• Dispute—The New Jersey dispute had stalled work on two jobs. In both instance, the conflicts arose over an intermediate step in putting up acoustical ceilings—installation of T, H or Z-bars and of the gypsum board to which the acoustical tile is attached. The right to install these items is claimed by the lathers both in the constitution of the international union and in collective bargaining agreements with employers. There is no dispute over the right of lathers to insert hangers, straps and 1½" channels, or over the right of carpenters to attach the tile.

On one job, the lathers protested a provision in the subcontract that gave to a sub who employed union carpenters the job of installing T-bars as well as the tile. That dispute was resolved by eliminating the use of T-bars.

On the other job, the subcontract gave subs who employed lathers all of the ceiling work except the installation of tile. The carpenters protested this assignment and the dispute went to the Joint Board over the protest of the lathers and one sub. The Joint Board assigned the disputed installation of Pomeroy bars and gypsum sheathing to the carpenters. Amid another series of work stoppages, the work was reassigned and then the lathers walked off the job.

Three of the contractors filed unfair labor practice charges against the locals with the NLRB. The NLRB asked the district court for a temporary injunction. With the locals now enjoined from further stoppages, the case goes back to the NLRB for final disposition. Here is where the big problem begins.

• Law—As the law now stands, it's an unfair labor practice for a union to engage in a work stoppage aimed at forcing an employer to assign disputed work to that union instead of to another. When such a charge is filed, the NLRB, which may seek to end the stoppage by getting an injunction, is directed to hear and decide the dispute, after first affording the disputing unions an opportunity to settle the dispute themselves.

In the Lee case (ENR Sept. 1, 1955, p. 106), the NLRB affirmed the principle of not interferring with jurisdictional disputes, insofar as what the work assignment should be where the parties to the dispute are subject to the Joint Board procedure. This effectively made the Joint Board the final arbiter. Compliance with its decisions is voluntary and is not assured.

Since the Lee case, the NLRB has stepped deeper into jurisdictional disputes when it has found an available loophole. It did so in a dispute between steamfitters and electricians over air conditioning installation at a Pittsburgh shopping center, even though both unions were subject to the Joint Board, because the subcontractor who made the assignment was not so bound. But the NLRB decision followed the earlier Joint Board assignment. On the same grounds, the NLRB stepped into a carpenter-roofer dispute in California over the laying of composition shingles, but here the board ruled that the contractors, who were not subject to the Joint Board, could make whatever work assignments they choose despite a ruling of the Joint Board in favor of roofers.

An added complication in the New Jersey dispute is the present status of the lathers with respect to the Joint Board. Since the Lee case, the AFL-CIO Building Trades Department has changed its constitution to make all affiliates subject to the Joint Board. The lathers argue this still doesn't bind them because it violates the building trades' constitutional provision on jurisdiction as well as the AFL-CIO constitutional provision on autonomy. Their formal appeal to the AFL-CIO is still pending.

Whether the NLRB will again defer to the Joint Board or make a work assignment of its own remains to be seen. Judge Forman, who wrote the New Jersey decision, indicated that some definitive decision should be made. "The relationships between the two crafts over the boundary lines of their respective jurisdictions," he said, "are chaotic. They are such that there is certainly reason to believe the interests of employers and workers alike are imperiled, not to mention the ultimate victim, the consuming public. It is only rational that both parties to the dispute should be restrained from interfering with the accomplishment of the work as assigned by the given employer at least until an equitable decision is reached as to the proper boundary lines of the respective jurisdictions."

An "equitable decision" could be reached by an international agreement between the unions. But if the NLRB attempts to do it itself, it will be something new.

Secondary Boycotts

Texas case before ICC hits hot cargo clauses

An oblique attack on the validity and effectiveness of hot cargo clauses in labor contracts got under way this week, when the Interstate Commerce Commission opened hearings on charges which a nonunion trucking concern in Texas has filed with the ICC against a group of union truckers.

Galveston Truck Line Corporation has claimed that the union truckers, in refusing to handle Galveston shipments because of hot cargo clauses in teamster contracts, are violating ICC regulations. Both the teamsters union and the National Chamber of Commerce have been allowed to intervene.

Although the basic question is whether a common carrier can refuse shipments to the public under an ICC permit, the case has attracted wide attention, not only because of its implications in the trucking industry but also because of the still unanswered question of whether the clauses are void as a matter of public policy.

In granting an injunction against a District Council of Carpenters in Massachusetts, for instance, a federal court has ruled that an employer can't deny the public the law's protection against secondary boycotts by signing hot cargo clauses.

Under these clauses a union reserves the right to refuse to handle "unfair" goods, which are produced or handled by someone with whom the union has a dispute.

The National Labor Relations Board has held that the clauses are not in themselves invalid, although the secondary boycott provisions of the Taft-Hartley Act prohibit a union from inducing its members to enforce them. But so far, union enforcement through pressure on employers has generally escaped the law's prohibitions.

Prosperity for All

Labor's economic goals get Labor Day billing

Labor Day found organized labor rededicating itself to the aims and principles of free trade unionism. As the big guns sounded off across the nation, emphasis was on achievement of greater economic prosperity, security and equality of opportunity for the millions of workers who make up our labor force.

It was labor's 62nd annual celebration and the first for the united labor movement, now represented by the AFL-CIO.

To those who wrestle with collective bargaining in the construction industry, labor's most significant aims are its economic goals as restated by the leaders of the new federation on Monday. And here the basic aim is to secure for working people a "fair share" of what they produce.

Described by AFL-CIO President George Meany as "more than a living wage", it means a high enough income to live comfortably and decently, to raise and educate a family, to afford protection against the hazards of sickness and unemployment, and to provide security for old age.

All this—which labor adds up to a higher standard of living for all and one that can't be "frozen"—is tied to what the AFL-CIO calls the "key" to the nation's economic prosperity. That key is higher mass purchasing power.

This, the AFL-CIO says, is to be achieved on its part in the field of private enterprise through "pressure for higher wages" and through organization of the millions of yet unorganized workers. On the legislative front, it will continue to push—with emphasis on the ballot box as a lever—for supplementary action, including an improved social security system, a program of medical insurance, greater federal aid in areas such as housing and education, and more equitable labor laws.

But labor was not alone in advancing these objectives. In a Labor Day message to the AFL-CIO, U. S. Secretary of Labor James P. Mitchell had this to say: "It is the responsibility of all of us in whatever calling, labor, management and government, to make sure that the American dream is a reality to an ever increasing number of our people; that the fruits of our labor are ever more widely distributed; and that the leisure which brings health of body and peace of mind is ever more abundantly available".

And in turning to the methods labor will use in achieving its goals, leaders of the AFL-CIO were quick to deny that their program would embrace socialism or nationalization of industries. Said Secretary-Treasurer William Schnitzler: "The American system of free enterprise, within legitimate boundaries, is the best method for the achievement of universal prosperity".

Labor Endorsement

Bates, Beck, Hutcheson Oppose Stevenson Choice

AFL-CIO endorsement of the Stevenson-Kefauver ticket was recommended last week by the federation's Executive Council. The recommendation will go to the General Board of the AFL-CIO on September 12.

The council's vote for endorsing a presidential candidate was 14 to 8. The vote to endorse Adlai Stevenson instead of President Eisenhower was 17 to 5.

Four of the five building trades members on the council voted against any endorsement—Bates (bricklayers), Beck (teamsters), Hutcheson (carpenters) and MacGowan (boilermakers). On the second vote, MacGowan favored Stevenson. Joseph Keenan (electrical workers) voted for the idea of endorsement as well as the selection of Stevenson. Combined union strength of the dissenting building trades members is about 2.25 million. Beck and Hutcheson supported Eisenhower in 1952 and present indications are they will do so again.

AFL-CIO President George Meany has consistently favored a non-partisan approach, with emphasis on supporting sympathetic candidates regardless of party label. He apparently does not consider the Stevenson endorsement as an endorsement of the Democratic ticket. The federation's Committee on Political Education, for example, is specifically endorsing a number of Republican congressional candidates.

In explanation of the council's action, Meany said: "We make no pretense of controlling anyone's vote. However, those favoring endorsement feel perhaps that their decision will influence some votes."

Decertification Ruling Appealed by Engineers

The National Society of Professional Engineers is attempting to obtain a legal ruling that the Taft-Hartley Act gives professional employees the right to a separate vote to determine whether they want to continue representation for collective bargaining purposes by a trade union.

NSPE has filed a "friend of the court" brief in the U.S. District Court for the District of Columbia in support of a group of Westinghouse engineers who have appealed a National Labor Relations Board decision denying them a separate vote to determine future representation.

In the Westinghouse case, the NLRB ruled that it is not required to give professional employees a separate vote in decertification proceedings. The pending court case will decide the legality of that ruling.

The position taken by NSPE in its brief is that employees are entitled to refuse collective bargaining as well as to accept it. The argument is that the Taft-Hartley Act gives professional employees the right to a separate vote in the determination of collective bargaining representation, and that it makes no distinction between certification and decertification proceedings. As a result, says NSPE, the NLRB ruling that it has policy discretion in allowing or refusing a separate professional group vote for decertification is contrary to law.

NSPE also argues that the legislative history of the law shows that Congress intended to give professional employees the right of separate vote in all representation proceedings.

Introducing a tough "Lightweight"

NEW Amsco® Manganese Steel LIGHTWEIGHT DIPPER

Rugged 3/4 yd. dipper, made of the "toughest steel known," actually work-hardens under impact

Those big, tough Amsco Dippers now have a smaller brother. With this new, rugged, lightweight dipper, small shovel operators can enjoy the combined advantages of long-wearing manganese steel and proved Amsco design features, such as:

- One-piece manganese steel back castings
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Ask your shovel manufacturer for full information—or write us direct for descriptive literature.

"Vital Statistics" on this new lightweight champ

Height of front over teeth	4 ft. 5/8 in.
Height of back	2 ft. 7 in.
Opening at top	2 ft. 5 in.
Opening at bottom	2 ft. 7 in.
Approximate weight	1550 lbs.

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OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DELAWARE, OAKLAND, ST. LOUIS; JOLIETTE, QUEBEC

Bids: September 13, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 13th day of September 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, N. Y.						
Greene (Rte. 42)	FERC 56-72	Shandaken-Lexington, Pt. 2, S.H. 1774 Proj. ER-64(1)	0.34	Stream Channel Improvement	$2,500 Plans $10	$45,000
Greene (Rte. 23)	FERC 56-73	Catskill-South Cairo, S.H. 613 Proj. ER-65(1)	0.54	Stream Channel Improvement	$4,500 Plans $10	80,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
HERKIMER	FASS 56-10	Uebler Road (County Road) Proj. S-466(1)	2.89	Bit. D. S. Treated Gravel Precast-Prestressed Conc. Beam 59′	$17,000 Plans $15	$317,000
DISTRICT No. 3, W. Robinson, District Engineer, Weigh Lock Building, 301 E. Water St., Syracuse, N. Y.						
Onondaga (Rte. 48)	FAC 56-8P FGC 56-9 FASH 56-6P FARC 56-63	City of Syracuse: State Fair Boulevard The Lake Onondaga West Shore Development, North-West Arterial Connection Solvay-State Fair-Syracuse, S.H. 1353-1353A, Baldwinsville-State Fair, S.H. 8496 Proj. U-UG-991(5)	7.37 (2.79) (Acc.)	Asp. Conc. Ty. 1A = 9.82 Mi. Misc. Work = 0.34 Mi. 4 Hy. Seps. Comp. I-Beams 135.3′, 98′, 158.9′ and 155.3′ 1 RR. Sep. Comp. I-Beam 382′ 1 Ped. Over Pass Comp. I-Beam 145.8′ 2 Ped. Over Passes I-Beams 453.2′ and 153.5′ 2 Ped. Over Passes Precast Prestressed Conc. Beams 217.5′ and 176′ 1 RR.. Sep. I-Beam 25′ 1 Vehic. Underpass Conc. Rig. Frame 32′	$325,000 Plans $100	5,885,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 W. Main St., Hornell, N. Y.						
Chemung (Rte. 17)	FARC 56-68	Elmira-Horseheads Connection, Pt. 1, F.A.S.H. 54-15 Elmira-Lowman, S.H. 5207 Proj. U-221(8)	0.46 (0.70) (Acc.)	Asp. Conc. Opt. = 0.40Mi. Misc. Work = 0.06 Mi. (Cem. Conc. Pavt. on Ramps = 0.70 Mi.) Hy. Sep. Comp. I-Beam 156.8′ Br. Comp. Girder = 177.4′	$65,000 Plans $50	1,180,000
Yates (Rte. 14A & 54)	FARC 56-89	Dundee-Penn Yan, S.H. 5324; Penn Yan Village, S.H. 5291; Penn Yan-Halls Corners, S.H. 5323; Penn Yan-Potter, Pt. 1, S.H. 1596; Keuka-Penn Yan, Pt. 3, S.H. 8523 & Penn Yan Village: Lake Street, S.H. 9325 Proj. F-U-146(2), U-529(7)	4.66	Asp. Conc. Opt. Comp. I-Beam Br. 139′	$100,000 Plans $50	1,790,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
St. Lawrence (Rte. 37B)	FASSH 56-4	Village of Massena: Center St.-Parker St. Bridge and Interchange Proj. US-467(1)	0.64 (0.60) (Acc.)	Asp. Conc. Opt. Bridge-Welded Plate Girder 840′	$130,000 Plans $25	2,420,000
St. Lawrence (Rte. 37)	FATC 56-1	Massena-South Side Route, Pt. 1, F.A.S.H. 56-13 Massena-South Side Route, Pt. 2, F.A.S.H. 55-7 Massena-Helena, Pt. 1, S.H. 1261 Proj. U-580(11)	5.13	Traffic Signal System	$4,000 Plans $10	73,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, N. Y.						
Delaware (Rtes. 28&30)	BWS 56-1	Andes-Margaretville, S.H. 8017 Margaretville-Halcottsville, S.H. 5384	0.46	Sanitary Sewer System = 0.44 Mi. Misc. Work = 0.02 Mi.	$10,000 Plans $10	$171,000
DISTRICT No. 10, M. E. Goul, District Engineer 325 W. Main Street, Babylon, L. I.; N. Y.						
Suffern (Rte. 110)	FGRC 56-70	Huntington-Amityville, Pt. 2, S.H. 1219 Proj. D-AD-U-UG-8(2)	0.22	9″ Cem. Conc. Pavt. 2 at 25′ Wide = 0.19 Mi. Misc. Work = 0.03 Mi. R.R. Sep. Plate Girder 133′	$40,000 Plans $15	693,000
Kings	FAPE 56-1	Prospect Expressway Cont. 3A Proj. U-1081(2)	0.78 (1.63) (Acc.)	9″ Cem. Conc. Pavt. 2 @ 36′ Var. Wide = 1.13 Mi. Sheet Asp. Pavt. = 1.15 Mi. Misc. Work = 0.13 Mi. 3 Hy. Seps. Steel Girder 114.7′, 107.6′ and 135.5′ 1 Ped. Over Pass Steel Girder 159.7′	$330,000 Plans $100	$6,043,000
Bronx	FAMDE56-1	Major Deegan Exp. & Ext. (Cont. 18) Proj. U-1082(22)	7.33	Landscaping and Misc. Work	$12,000 Plans $15	$213,000
DISTRICT No. 10 (Contd.)						
Nassau & Suffolk	NSP 56-1 CAPSP 56-1 SAGSP 56-1 SSP 56-2 WSP 56-1	Northern State Parkway; Captree State Parkway; Sagtikos State Parkway; Southern State Parkway and Wantagh State Parkway	36.98 (0.90) (Acc.)	Cem. Conc. Pavt. = 0.90 Mi. Fencing, Planting, and Misc. Work = 36.98 Mi.	$12,000 Plans $10	230,000

Any projects in this letting that are on the Federal-Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Prequalification Date: September 13, 1956

Board of Education —Bureau of Construction

Notice Re: Prequalification Forms For Contractors

NOTICE IS HEREBY GIVEN THAT Director of the Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification of bidders, from contractors who may wish to submit bids for the proposed hereinafter specified contracts, as follows:

For Playground Development, including plumbing and drainage—Public School 30, Conover St. between Sullivan and Walcott Sts., Brooklyn.

Prequalification application forms will have to be secured and must be submitted to the Director, Bureau of Construction Office, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York.

Bids when advertised will be received from prequalified bidders only.

The time for submitting prequalification application forms for the above contracts will expire on Thursday, September 13, 1956.

WILLIAM H. CORREALE
Director

Dated: August 29th, 1956

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

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U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4756) will be received at Kanab, Utah, until October 9, 1956, for furnishing labor and materials for Earthwork and Culverts for Access Highway, Station 400+00 to Station 1497+50, Glen Canyon Dam, Colorado River Storage Project, Arizona and Utah. Location about 115 miles north of Flagstaff, Arizona. Principal items are 434,000 cu. yds. excavation; furnishing and laying 2,900 ft. of 24-inch to 48-inch corrugated metal pipe, furnishing and laying 1,026 ft. of 60-inch to 78-inch corrugated metal pipe; and furnishing and erecting 296 ft. of multiple plate corrugated metal pipe; and other work. Completion time 240 days. For particulars, address Bureau of Reclamation, P. O. Box 267, Kanab, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 13, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 13th day of September 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: in WASHINGTON COUNTY, G. L. Nickerson, Dist. Engr., 353 Broadway, Albany 1, N. Y.

Contract No.	Type	Name of Highway and Miles	Deposit for Plans	Bid Deposit	Department Estimate
R.C. 56-65	Asp. Conc. Opt.	Cambridge-Salem, Pt. 3, SH. 5316 0.07 Mile (Route 22)	$10	$900	$17,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: October 2, 1956

Contract NA-350.004

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
AIR CONDITIONING
PASSENGER TERMINAL BUILDING

Sealed proposals for installing an air conditioning system in the Passenger Terminal at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, October 2, 1956, at which time said proposals will be opened and read in Room No. 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, September 6, 1956

Bids: September 13, 1956

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on September 13, 1956 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 56-6 for
Resurfacing a Portion of Delta Dam
on the Mohawk River, near Rome,
Oneida County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York
(b) Mr. Lacy Ketchum, District Engineer, 109 North Genesee Street, Utica, New York
(c) Department of Public Works, 270 Broadway, New York City, N. Y.

The deposit for Plans and Proposal Forms for the contract is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Engineer's Estimate of Cost for this contract is $15,000.00.

The proposal for the contract must be submitted in a sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. The proposal must be accompanied by a draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $800.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Bids: October 2, 1956

Contract LT-160.050

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
THIRD TUBE
DIRECTIONAL SIGNS

Sealed proposals for the furnishing and installation of directional signs for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, October 2, 1956 at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, September 6, 1956

Bids: September 25, 1956

Contract 453

WEST DELAWARE TUNNEL

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time), on Tuesday, September 25, 1956, for Contract 453, for the construction of a portion of the West Delaware Tunnel of the Delaware system, comprising the construction of about 26,000 linear feet of tunnel, including Shaft 4 approximately 380 feet deep, located in the Town of Colchester, Delaware County, and in the Town of Rockland, Sullivan County, New York.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1317, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

OFFICIAL PROPOSAL

RATE: $2.10 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. *Friday* for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

U. S. Government

Department of Commerce, Bureau of Public Roads, August 24, 1956. SEALED BIDS will be received at the office of the Bureau of Public Roads, c/o Acadia National Park Office, Bar Harbor, Maine, until 11:00 a.m., E.S.T., SEPTEMBER 21, 1956, for the construction of Project 4A2, Acadia National Park, Hancock County, Maine. 2.252 miles Grading, Draining, Hot Asphalt Concrete Paving and other work on the East Side Loop Road. The approximate quantities of the most important items are 63,150 cu. yd. Excavation, 5,500 tons Type I-1 Hot Asphalt Concrete Pavement, and 800 cu. yd. Cement Rubble Masonry. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the Bureau of Public Roads offices, c/o Acadia National Park Office, Bar Harbor, Maine, or 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4753) will be received at Denver, Colorado, until October 9, 1956, for furnishing one 51-inch steel outlet pipe; one 48-inch steel intake pipe; and other steel pipe, sizes 3-inch to 14-inch inclusive, for Casitas Dam, Ventura River Project, California. Delivery is desired within 360 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4755) will be received at Denver, Colorado, until October 2, 1956, for furnishing one vertical-shaft, double volute, centrifugal pump with regulating valve and connection piece, having an initial capacity of 75 cfs under 92 foot head, at a speed of 400 rpm, suitable for ultimate capacity of 100 cfs by replacing the impeller, for "C" Line Canal Pumping Plant Extension, Boise Project, Idaho. Delivery is desired within 200 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Bids: September 20, 1956

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND INSTALLING
OF ELEVATORS AND MOVING STAIRS
AT
BARNHART ISLAND POWER PLANT
AND
LONG SAULT DAM

SPECIFICATIONS NO. PA-5-12503

ST. LAWRENCE CONTRACT NO. P33

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and installing of Elevators and Moving Stairs for the Barnhart Island Power Plant and Long Sault Dam near Massena, St. Lawrence County, New York until 10:30 A. M., Eastern Daylight Saving Time on the 20th day of September, 1956, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place the proposals will be publicly opened and read aloud.

The work includes the design, manufacture, delivery, installation, and maintenance of seven elevators and two moving stairs, and the associated equipment and services.

The work shall be completed on or before December 1, 1959.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

GOVERNMENT OF IRAQ DEVELOPMENT BOARD AND MINISTRY OF DEVELOPMENT BAQUBA ROAD BRIDGE CONTRACT B/12 (1956) The Development Board and Ministry of Development invites TENDERS FROM experienced Civil Engineering Contractors for the construction of a steel cantilever road bridge approximately 180 metres long and 11 metres wide over the River Diyala at Baquba, together with the construction of the approach embankments thereto. The Contract Documents and Conditions as to Tendering may be inspected on and after the 13th day of August, 1956, at any of the following places:—(a) The offices of the Directorate General of Legal affairs and Contracts, Ministry of Development, Baghdad, Iraq. (b) The Embassies and Legations of Iraq in Washington, Paris, Rome, Brussels, Bonn, Cairo, Karachi and New Delhi. (c) The offices of Rendel, Palmer & Tritton, 125, Victoria Street, London, S.W. 1, England. Firms desiring to Tender may obtain two copies of the Contract Documents between the 13th day of August, 1956, and the 12th day of October, 1956 (both days inclusive) from the Directorate General of Legal Affairs and Contracts, Ministry of Development in Baghdad, or the offices of Rendel, Palmer & Tritton in London, upon payment of twenty-five Iraqi Dinars or the equivalent thereof for each two sets of documents. Tenders must be accompanied by a deposit of ID.10,000/- (Ten thousand Iraqi Dinars) either in cash or by a letter of guarantee to be made by or through an approved Bank established in Iraq. Fully detailed conditions as to this deposit may be ascertained from the "Conditions of Tender" attached to the Contract Documents. Tenders must be submitted to the Development Board (Directorate General of Legal Affairs and Contracts, Ministry of Development), Baghdad, Iraq, in sealed envelopes endorsed clearly on the outside with the words "Baquba Road Bridge" and will be received up to noon on the 12th day of November, 1956. A Memorandum of capacity, Method of Procedure and Articles of Association must be submitted at the same time. Particular attention is drawn to Clause 8 of the "Conditions of Tender" stating that tenders will be accepted only from firms of Contractors who have previously executed works of a similar character and magnitude.

Tenders not submitted within the time specified or not accompanied by a receipt of the deposit, or a letter of guarantee or if the Tenderer resides in a Liwa in Iraq where a Chamber of Commerce exists, by a Certificate of Membership of a Chamber of Commerce, shall be neglected.

The Board does not bind itself to accept the lowest or any tender.

Bids: October 16, 1956

Construction of Pumping Station

ADVERTISEMENT

Notice is hereby given that sealed bids will be received in accordance with the law by the Hampton Roads Sanitation District Commission, until three o'clock P.M., Eastern Standard Time on the sixteenth day of October, 1956 at the office of the Commission, Board of Trade Building, Norfolk, Virginia, for furnishing materials and performing the labor for constructing a combined sewage pumping station and office building including connecting gravity, bypass and force main sewer lines, at the corner of Plume and Atlantic Streets, all in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be examined without charge either at the office of the Commission or at the office of the Consulting Engineers. Copies thereof may be obtained either from the Commission or from the Consulting Engineers upon deposit of Fifty ($50) Dollars. This sum will be returned to any bidder submitting a bid or to any sub-contractor who is certified by a valid bidder as having included a sub-contract bid in the amount of Twenty Thousand ($20,000.) Dollars or more, upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received. Otherwise, the entire deposit will be forfeited.

Bidders are required under Title 54, Chapter 7, Code of Virginia, to show evidence of certificate of registration before bid may be received and considered on a general or sub-contract of Twenty Thousand ($20,000.) Dollars or more. The bidder shall place on the outside of the envelope containing his bid and in his bid over his signature the following notation: "Registered Virginia Contractor No. ....".

Each proposal must be accompanied by a certified check in amount equal to one (1%) percent of the proposal, together with a bid bond in amount equal to ten (10%) percent of the proposal. The checks and bid bonds of all except the three (3) lowest bidders will be returned within three (3) days after the opening of the bids while the remaining checks and bid bonds will be returned as soon as the contract has been executed. The certified check and bid bond of the successful bidder will be retained to pay for any damage or loss to the Commission in case such successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Commission reserves the right to consider bids for fifteen (15) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

E. T. Gresham (Chairman)
J. C. Morris (Vice Chairman)
G. A. Treakle
M. B. Wagenheim
Clark R. Nickerson
COMMISSIONERS, HAMPTON ROADS SANITATION DISTRICT COMMISSION

Chas. B. Borland, Manager
Buck, Seifert and Jost
Consulting Engineers

Make Plans Accessible to Distant Bidders

Plans and specifications for inspection by distant bidders may be filed at any of **Engineering News-Record** offices without charge. Or a sufficient supply may be deposited at such of our offices as seem desirable subject to your usual requirements in the matter of deposits, etc. (We assume full responsibility for return of plans or collection and return of deposits).

Bids: September 13, 1956

Delaware River Port Authority

of the
COMMONWEALTH OF PENNSYLVANIA
and the
STATE OF NEW JERSEY
Administration Building
Camden, New Jersey
WALT WHITMAN BRIDGE
CONTRACT NO. P-13

Sealed bids will be received for "Installation of New Stacks on the Power Plant of Publicker Industries, Inc., Delaware and Packer Avenues, Philadelphia, Pa", known as Contract No. P-13, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey, until 2:30 P.M., Eastern Daylight Time, Thursday, September 13, 1956, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon the deposit of $10.00 check, which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $20,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
8/23/56 Executive Director

Bids: October 16, 1956

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the Director, Purchases and General Services, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M. E.S.T., October 16, 1956, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Location: The pumping station is to be located at a site northwest and adjacent to the Sewage Treatment Plant, situated near the southwest bank of the James River at Rockett's Wharf, northeast of the United States Naval Diesel School, in the City of Richmond, Virginia.

Type of Work: Division II—Main Pumping Station—General, includes the construction of the pumping station, junction chamber, regulator chamber, incoming sewers and outside piping, and all appurtenat work, except that included under Division III.

Division III—Main Pumping Station—Pumping Equipment, includes the furnishing, testing and delivering of the sewage pumps together with motors, engines, drives and appurtenances.

The proposal and other contract documents may be examined at the office of the Director of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the contract documents may be obtained from the office of the Director of Public Works upon the deposit of Twenty-Five Dollars for each set. Any general contractor who submits a bona fide bid on the project will be refunded his payment in full for not more than three sets, and will be refunded fifteen dollars per set for each additional set. All others will be refunded fifteen dollars per set upon the return of the documents in good condition within ten days after the opening of the bids.

J. W. Huffman
Director of Purchases and
General Services

OFFICIAL PROPOSALS

GOVERNMENT OF IRAQ DEVELOPMENT BOARD AND MINISTRY OF DEVELOPMENT BAGHDAD ELECTRIFICATION OF NORTHERN IRAQ POWER TRANSMISSION LINES CONTRACT No. 6 STEEL-CORED ALUMINUM CABLES The Developement Board and Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply and delivery lines and a short length of 33 KV line for 300 Km. of double-circuit power transmission lines consisting mainly of 132 KV lines and a short length of 33 KV line for the Northern Iraq Electrical System. Tender Documents may be inspected on and after August 20th, 1956, until October 1st, 1956, at the following addresses: (1) Directorate General of Legal Affairs and Contracts, Ministry of Development, Development Board, Baghdad. (2) Embassies of Iraq, in Washington, London and Paris. (3) Royal Legations of Iraq in Bonn, Brussels and Rome. (4) Consul Honoraire of Iraq in Stockholm, and Egyptian Legations in Bern and The Hague. (5) At the office of the Consulting Engineers, Messrs. Electrobe-Traction et Electricite, 1, Place du Trone, Brussels. Firms desiring to tender may obtain two sets of Contract Documents, on and after August 20th, 1956, until October 1st, 1956, from either the Directorate General of Legal Affairs and Contracts at the Development Board Offices, Baghdad, Iraq, or Messrs. Electrobel-Traction et Electricite, 1, Place du Trone, Brussels, Belgium, or the abovementioned Embassies and Legations on payment of fifteen Iraqi Dinars or the equivalent of same. This sum will not be returned. All tender documents are to be submitted in English, and they must be accompanied by a deposit of ID 8000 (Eight Thousand Iraqi Dinars), which must be paid in cash to the Directorate General of Accounts of the Ministry of Development, and the receipt issued for such payment must be attached to the tender Documents. Such cash deposit may be replaced by a Bank Guarantee from or through an approved bank in Iraq. Tenders must be submitted in a sealed envelope endorsed clearly on the outside "Tender for Steel-Cored Aluminum Cables of the Power Transmission Lines for the Northern Iraq Electrical System". They must be delivered to the Ministry of Development on or before 12 noon local time on October 15th, 1956. If sent by post the tenders shall be registered, but tenders must assure themselves of delivery to the Board in due time. A letter of capacity, method of procedure, articles of association, are to be submitted with the tender at the same time. Tenders not submitted within the time specified or not accompanied by a receipt of the deposit or Bank Guarantee shall be neglected. The attention of the Tenderers is called to the fact that early completion of the project is desired, and therefore an early completion date will be considered an important factor in the selection of the successful tenderer. The Development Board does not bind itself to accept the lowest or any tender. Minister of Development.
EC.

GOVERNMENT OF IRAQ DEVELOPMENT BOARD AND MINISTRY OF DEVELOPMET HOUSES OF PARLIAMENT—BAGHDAD The Development Board and the Ministry of Development invite tenders from suitable firms for the completion of the Houses of Parliament of which the Shell has been built. The contract involves masonry, brickwork, plaster, paint, marble work, joinery etc. Further particulars of these requirements and Tender Documents can be inspected during office hours at the Offices of the Directorate General of Legal Affairs and Contracts, Ministry of Development Baghdad or by application to the Iraqi Embassy in London at 21 Queen's Gate, W.1, or at the London Office of the Architect Mr. J. Brian Cooper, F.R.I.B.A. at 38 Highfield Road Edgbaston, Birmingham 15, England. These documents may be obtained from any of the addresses given above upon payment of five Iraqi Dinars in Baghdad or five pounds Sterling in London. Tenders must be delivered in a plain sealed envelope marked on the outside "Tender for Finishing Works, Houses of Parliament" and addressed to the Development Board (Directorate General of Legal Affairs and Contracts) on or before 12 noon local time on Monday 15th October, 1956. Enclosed in a separate envelope a letter of capacity, method of procedure and articles of association must be submitted at the same time. Tenders will only be accepted from firms who had previous experience in works of a similar nature and magnitude. Each tender must be accompanied by a cash deposit or a Banker's Guarantee from an approved Bank in Iraq in a sum equivalent to not less than 2% of the tender figure. Any tender not submitted within the time specified or not accompanied by a receipt of the deposit or a letter of guarantee and the Certificate of Membership of a Chamber of Commerce (if the tenderer resides in a Liwa in Iraq where a Chamber of Commerce exists) will be ignored. The Board does not bind itself to accept the lowest or any tender. Minister of Development.
N. Abbo.

Bids: September 11, 1956

Contract 462

ACCESS ROADS AND BRIDGES

SEALED BIDS will be received by the Board of Water Supply, at its office, 13th floor, 120 Wall Street, New York City, until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time) on Tuesday, September 11, 1956 for Contract 462, for the construction of approximately 1¼ miles of gravel road, a timber highway bridge about 180 feet long; a steel and concrete highway bridge about 250 feet long; a sewage treatment plant; an engineer's office and a soils laboratory; the excavation of exploratory shovel cuts and other incidental work. The location of the proposed work is in the Town of Deposit, Delaware County, New York.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1317, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: September 13, 1956

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—PURSUANT to the provisions of Highway Laws, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on September 13, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON SCAJAQUADA CREEK EXPRESSWAY, NIAGARA THRUWAY TO DELAWARE PARK, CITY OF BUFFALO, ERIE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-95

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. E. G. H. Youngmann, District Engineer, 65 Court Street, Buffalo, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $65,897.50.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $3300.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Bids: October 3, 1956

Construction of Pumping Station

ADVERTISEMENT

Notice is hereby given that sealed bids will be received in accordance with the law by the District Commissioners of the Second Taxing District of the City of Norwalk, Connecticut until 10:30 o'clock, A.M. Eastern Daylight Saving Time on the third day of October, 1956 at the office of the District Commissioners of the Second Taxing District, City Hall, South Norwalk, Connecticut, for furnishing materials and performing the labor for constructing a pumping station and installing piping and equipment therein at the water filtration plant of the District, all in accordance with plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the office of the District Commissioners or from the Consulting Engineers upon deposit of Twenty-Five ($25.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be done includes furnishing all materials and labor, tools, plant and equipment necessary for constructing, installing and completing, ready for operation, a booster pumping station approximately forty-four (44') feet by twenty-four (24') feet in plan, of reinforced concrete construction; installing two (2) electric motor driven centrifugal pumping units furnished by the District under another contract and furnishing and installing all piping, valves, electrical power and light wiring and controls and other accessories and appurtenances.

Each proposal must be accompanied by a certified check payable to the Second Taxing District, Norwalk, Connecticut or bid bond from a reliable surety company authorized to do business in the State of Connecticut and satisfactory to the Commissioners, in amount equal to fifteen (15%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Commissioners, or the liabality bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Commissioners reserve the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

DISTRICT COMMISSIONERS
SECOND TAXING DISTRICT
CITY OF NORWALK,
CONNECTICUT
IRVING C. JENNINGS—
COMMISSIONER
JOHN A. O'CONNOR—
COMMISSIONER
STANLEY H. STROFFOLINO—
COMMISSIONER
ELMER F. BRACKEN—
GENERAL MANAGER

BUCK, SEIFERT AND JOST
CONSULTING ENGINEERS

U. S. Government

GOVT. OF DIST. OF COL., DEPT. OF HIGHWAYS, Aug. 20, 1956. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D. C., until 2 PM, Sept. 20, 1956, EDT, and then publicly opened and read for Rehabilitation of the Operating Machinery of the 11th St. Bridge over the Anacostia River. Proposal forms, plans and specns. obtainable from Supervisor, Contr. & Bond Section, Procurement Office, D. C., Rm. 406, 499 Penn. Ave. N.W., upon deposit of a certified check for $20.00 per set, payable to Collector of Taxes, D. C. (Tel. NA 8-6000, Ext. 2378).

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P. O. Box 12 N. Y. 36, N. Y. September 20th issue closes Sept. 7th

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New York: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Wanted: Civil Engineers for permanent work on bridges in both design and field offices of established consulting engineer. Please send education and experience resume, references, and salary requirement. P-2368, Engineering News-Record.

Associate Professor of Civil Engineering—BS & MS in Civil Engineering to teach engineering mechanics, surveying, highway & reinforced concrete. Salary $5400 for nine months. Location—Texas. P-2297, Engineering News-Record.

Supervisory positions for High Dam Construction in India. Former Supervisory employees or those now in supervisory positions who have worked with me on projects in the past and are interested in foreign work. Contact me by letter: M. H. Slocum, 504 East Pine Street, Alhambra, California.

Structural Engineers for building design work. Consulting Engineers Office. Write training, experience and salary. Saul Shaw & Co., 24 Commerce St., Newark, N. J.

Wanted—Project Manager with extensive experience in the supervision and management of large scale concrete paving operations. Permanent position with rapidly growing organization. State experience, age, salary, availability and references. Reply P-2622, Engineering News-Record.

Construction or Railway Equipment Salesman. Young man, single or married, college graduate or engineering education, sales experience desirable but not essential. Willing learn sell and buy construction, railway equipment by correspondence and phone. Must be sober, industrious, reliable. St. Louis district. Give full details. P-2737, Engineering News-Record.

Assistant City Engineer for general municipal work. Send personal data. Salary range $4950-$5430 plus benefits. City Engineer, Watertown, New York.

General Superintendent, qualified engineer for Kansas contractor, must have proven experience on industrial buildings & gov't. projects. Salary open. P-2751, Engineering News-Record.

Architectural Engineer — Experienced steel and concrete designer for attractive position in office of Central Pennsylvania Architect. Work includes churches, schools and commercial buildings. Permanent position and attractive salary. P-2756, Engineering News-Record.

Field Engineer—Preferably civil engineering graduate with several years field experience for large heavy construction contractor to lay out work, make simple estimates and assist superintendent. Permanent position. Location Western Maryland or Chicago. Excellent opportunity for ambitious men as several of our executives have started with us in similar positions. Please state age, education, short experience outline and salary wanted. P-2765, Engineering News-Record.

Heavy Construction Superintendent — Top level mature man wanted. Should have as a minimum, for the last 10 years, been continuously employed as superintendent on foundations, heavy concrete work, bridges, treatment plants, industrial construction and similar work. Permanent position, congenial working conditions and commensurate salary. Also need younger man with corresponding qualifications as assistant to our general superintendent. P-2791, Engineering News-Record.

POSITIONS VACANT

Wanted—Young man, age 23 to 35, with water works experience to work for growing private water utility in active Illinois city. Excellent opportunity as assistant to manager. Salary open. Please submit complete resume stating education, age, experience, salary desired and date of availability. P-2609, Engineering News-Record.

Wanted: Young engineer with field experience in heavy construction for quantity take off and estimating assistance in Pittsburgh office of widely known construction company. P-2707, Engineering News-Record.

Designers—Steel, Concrete, Electrical Piping, Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Civil Engineers. Long established consulting engineer, eastern United States, has openings for graduate engineers with experience in either highway and bridge design or field and laboratory experienec in soil mechanics. Positions permanent. Liberal employee benefits. Salaries open. Send resume to P-2627, Engineering News-Record.

Assistant to County Engineer—Central New Jersey area. Design and construction of secondary roads and bridges and the development of a road building program. Must have B.S. in Civil Engineering or equivalent. State experience, expected salary and references. Applications answered and kept confidential. P-2721, Engineering News-Record.

Engineer. Unequalled opportunity in growing general contracting business in Central Pennsylvania. Permanent position with opportunity for ownership participation. State experience, salary desired and age. P-2793, Engineering News-Record.

Utilities Engineer—The position assist the Superintendent of Water and Sewers in the administration of the water and sewage systems. Considerable experience in a progressively responsible technical and administrative capacity including engineering and operations experience in a water utility or sewage system. Graduation from a four year college or university with specialization in civil, mechanical or sanitary engineering. Eligible to be registered in the State of Arizona. An applicant for Arizona registration shall be age 25 or over and have 8 years engineering experience, for which up to 5 years of training or teaching in engineering may be equated. Salary range —$575-$700 per month depending on qualifications. Starting rate may be $600 or $625. Age limit—applicants 25 to 55 years of age. Apply to: Leroy J. Brenneman Personnel Director City Hall Phoenix, Arizona.

Position as structural engineer, age 30-40, offered by Portland Cement Association, 33 W. Grand Ave., Chicago. Opportunities for engineer interested in theory and design of advanced uses of reinforced concrete.

Dredge Captain and Operators, for 20" electric dredge now being built for use at Tuttle Creek Dam, Manhattan, Kansas. Write giving full details on experience to List & Clark Construction Company, 730 Railway Exchange Building, Kansas City 6, Missouri.

Large Midwest Consulting firm has opening for experienced sewage and industrial waste treatment designer. Excellent opportunity for man of proven ability with large well established organization. Inexperienced designer need not apply. State full experience record and salary range in first reply. Travel and subsistence for interview will be considered. P-2843, Engineering News-Record.

POSITIONS VACANT

Wanted: Executive Engineer for Florida construction firm, capable of estimating and managing all phases of road, bridge, and underground construction. Satisfactory salary with bonus. Must have executive management experience as well as field management. P-2864, Engineering News-Record.

General Foreman—To take charge of General Construction on one of many projects with Northern New York contractor. P-2859, Engineering News-Record.

Field Geologist: Carry on field investigations and geological studies for portland cement mfr. for purpose of developing new sources of raw materials and extending knowledge of present deposits. Will hdqr. in Chicago, Ill., but must be free to travel. Will consider graduates as well as experienced applicants. Must have degree. Give full details on exp., training, personal data, and salary desired in first letter. Reply to P-2876, Engineering News-Record.

Engineers and Draftsmen. Structural mechanic for work in consulting engineers office in Hartford, Conn. area. Address reply to P-2873, Engineering News-Record.

Civil Engineer: To supervise Engineering Department in rapidly growing Santa Clara Valley city 35 miles south of San Francisco. Population now 21,000 and will increase to a minimum of 45,000. Must be registered as C.E. in California and have 5 years experience in C.E. Municipal background desirable. Salary range $553-$673. Submit a letter of application giving experience, education and personal background to Personnel Office, City Hall, Mountain View, Calif.

Highway and Bridge Designers, design draftsmen and surveyors by expanding highway engineering organization. Location, Middle-West. Give experience and references. P-2777, Engineering News-Record.

Engineers experienced in design and supervision of construction to work as resident engineers or prepare plans for water and sewer systems; also, architects for preparation of plans for general building work. State experience, age, salary required, when can report, and give references. Reply P-2827, Engineering News-Record.

(Continued on opposite page)

When Writing
Your Ad

Provide an indexing or subject word.
Write it as the first word of your ad.
If it is a Position Wanted or Position Vacant ad, make the first word the kind of position sought or offered.
This will assure proper classification in the column.
The right is reserved to reject, revise or properly classify all Want Advertisements.

Proper Classification increases the possibility of Prompt Returns

(Continued from opposite page)

SELLING OPPORTUNITY OFFERED

Established Manufacturers' Sales Representatives located in Washington, D. C., Albany, N. Y., Boston, Mass. and Miami, Fla., wanted by reputable manufacturer whose patented product is used in construction of sewage disposal plants, waterworks, pumping stations, industrial plants, etc. RW-2867, Engineering News-Record.

POSITIONS WANTED

Civil Engineer, (soils, concrete), BSCE, 28, experience in construction engineering, supervision and control of earthwork and concrete. Desires permanent position. PW-2508, Engineering News-Record.

Specifications — Does the boss write the specs in your organization? If so let me take away that headache. Long consulting experience in many fields of engineering. PW-2646 Engineering News-Record.

Construction Manager. Industrial constr. Civil Engr., job-planning, cost-control, estimating & management specialist. Now situated Phoenix. Confidential replies. Reply PW-2527, Engineering News-Record.

Construction Executive, sound experience all phases, bid to completion, buildings and heavy construction, available as project manager, chief estimator or similar position where scope and volume require top man. Now employed. Minimum $15,000. PW-2596, Engineering News-Record.

Master Mechanic heavy duty equipment asphalt plant, sand and gravel and quarry erection and operation. Asphalt paving and road building. 14 years experience. PW-2694, Engineering News-Record.

Sales Engineer, BSCE, under 30. Background in heavy construction. Wishes to join growing construction equipment or materials company. PW-2504, Engineering News-Record.

Construction Executive with 16 years experience in heavy construction with some municipal work. Experienced in managing a construction contracting firm. Seeks position managing company of branch. Will give consideration to position in French or Spanish speaking country. Please describe position available and possible earnings. PW-2711, Engineering News-Record.

Project Engineer and Asst. Sup't., BSCE, 29, 6 yrs. experience heavy concrete construction. Seek position with future advancement. Domestic or foreign. PW-2755, Engineering News-Record.

Registered Engineer, 30 veteran desires opportunity in consulting or contracting firm, highways and structures. Present salary over $8000. Prefer middle west location. Replies answered promptly. PW-2790, Engineering News-Record.

Architectural Estimator—6 years experience in commercial, industrial, also bridges and sewer treatment plants. Some field experience. Prefer to be located in south or west. PW-2779, Engineering News-Record.

Engineer—C.E. Degree—30 years experience in structural design, steel and concrete, plant layout and engineering, material handling—Available for European assignment—Speak German, know French. PW-2810 Engineering News-Record.

Florida interested job there—executive, field or sales capacity 15 yrs. experience heavy construction, waterfront work small initial salary acceptable. PW-2879, Engineering News-Record.

Superintendent, heavy & bridge construction, 19 years experience bid to completion. $200. PW-2835, Engineering News-Record.

Civil Engineer 20 yrs. experience mainly water and sewerage. Complete supervision design some supervision construction. Available now. Please specify duties and approx. earnings first reply. PW-2852, Engineering News-Record.

Equipment Supt. or Master Mechanic—20 yrs experience of maintaining and operating all type crawler tractors and rubber tire equipment. Will go anywhere references and resume furnished. PW-2844, Engineering News-Record.

Architects field superintendent-representative, experienced. Public and industrial buildings, available. PW-2857, Engineering News-Record.

Estimator Building and heavy construction thirty years experience covering all trades office and field qualifications available within thirty days. PW-2877, Engineering News-Record.

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City Hall, Royal Oak, Michigan

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P-8324, Engineering News-Record
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Paid vacations, Sick leave, Bonuses, Overtime

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P-2667, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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SPECIFICATION WRITERS:

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Submit resume or apply to:
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Personnel Manager

F. H. McGRAW & COMPANY

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P-2832, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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Write for application blank. Your reply will be promptly acknowledged and will be held confidential.

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Engineers, Designers, and Draftsmen having qualifying experience in one or more of the above fields, please submit complete resume listing education, experience, salary history, present salary requirement, and availability date to:

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P-2808, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIVIL ENGINEERS
SURVEYORS
FOR WORK IN SOUTHEAST ASIA

Personnel needed to complete technical party. Work involves design and supervision of construction of highways and bridges in South Vietnam. Duties include instruction of on-the-job trainees. High degree of initiative, judgment, and skill in handling human relations required in addition to professional competence. The following positions are to be filled:

Highway Engineers
Bridge Engineers
Soils Engineers
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A limited number of Junior Highway Engineers will be accepted. All other personnel must be experienced and able to provide references. Duration of project is two years minimum. Some housing available, but most personnel will be in field housing. Limited number of personnel may be accompanied by dependents. Only those interested in difficult and challenging work should apply.

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2300 Chester Ave., Cleveland 1, Ohio

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2 yr. job, middle west. Good salary plus bonus, must be experienced in deep sheeting and dewatering, state experience, age, availability and references.

P-2801, Engineering News-Record
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Civil or Sanitary Engineer to Design Sewage Treatment Plants and Sewage Works.

Structural Designers experienced in Concrete and Steel Design of Sewage Treatment and Water Treatment Plants.

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P-2841, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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FR-2853, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N.Y.

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PARKER-PARKINSON INC.
519 N. Delaware Ave. Phila. 23, Pa. MArket 7-2521

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Both 1949 Machines

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519 N. Delaware Ave. MArket 7-2521

FOR SALE or RENT

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30 ton Browning Diesel Loco. Crane. 1947.
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Editorials

Promoting the Profession

THE "ENGINEER OF THE YEAR" designated in various cities of the country in the program sponsored by the National Society of Professional Engineers—has a rare opportunity to use the honor accorded to promote the standing of the engineering profession at the time the award is bestowed. A number of these honored men have seized this opportunity to say some very worthwhile things to rather influential audiences.

One notable example this year was supplied by Francis S. Friel, consulting engineer of Philadelphia. Although Mr. Friel's speech of acceptance was short—not much more than 1,500 words—it showed thoughtfulness of purpose in its preparation. The purpose was to acquaint the audience—engineers and non-engineers alike—with some of the problems of the profession which they could help solve.

Mr. Friel titled his talk "Engineers Anonymous"—a reference to the fact, as he put it, that "engineers seldom make the headlines or the history books". His point was that anonymity offers no excuse to avoid the responsibility that an engineer has to contribute to the general welfare by designing safe and economical structures, and by conducting his affairs on a high professional plane. Nor does anonymity in any way decrease the engineer's responsibility "to see that the arts of his profession are taught to others", by aiding our schools of science and technology to turn out future engineering manpower in quality and quantity sufficient for the needs of our growing economy.

Others honored as was Mr. Friel should try to do likewise. These annual occasions offer an opportunity to promote the profession—and in many grass roots spots where such promotion can quickly bear fruit.

Smiths on TV

WE DON'T KNOW "JOE SMITH". But we are sure he exists, and that he is a typical American and that he stands for something or other in the minds of all of us.

We don't know Harold T. Smith, either. But we wish we did. For he really does exist; an engineer and construction man, lifted from anonymity by TV. Just a few days after "Joe" stopped the show in San Francisco, a dramatization, "Smith of Ecuador", was given a repeat network run. This Telephone Hour presentation is a gripping portrayal of real-life heroics. It depicts how Harold Smith and his small construction force dug out the injured and restored communications ~~for a~~ stricken area that lay between him and his dam-building project when the tragic 1949 earthquake struck Ecuador. For his assistance at a time when his project's fate was unknown, a village plaza in the region has been named in his honor.

We dont know this Harold Smith. But we are pleased to see his exploits made known by TV to a vast viewing audience. Too often the U. S. engineer works abroad—and at home, for that matter—without honor in his own land.

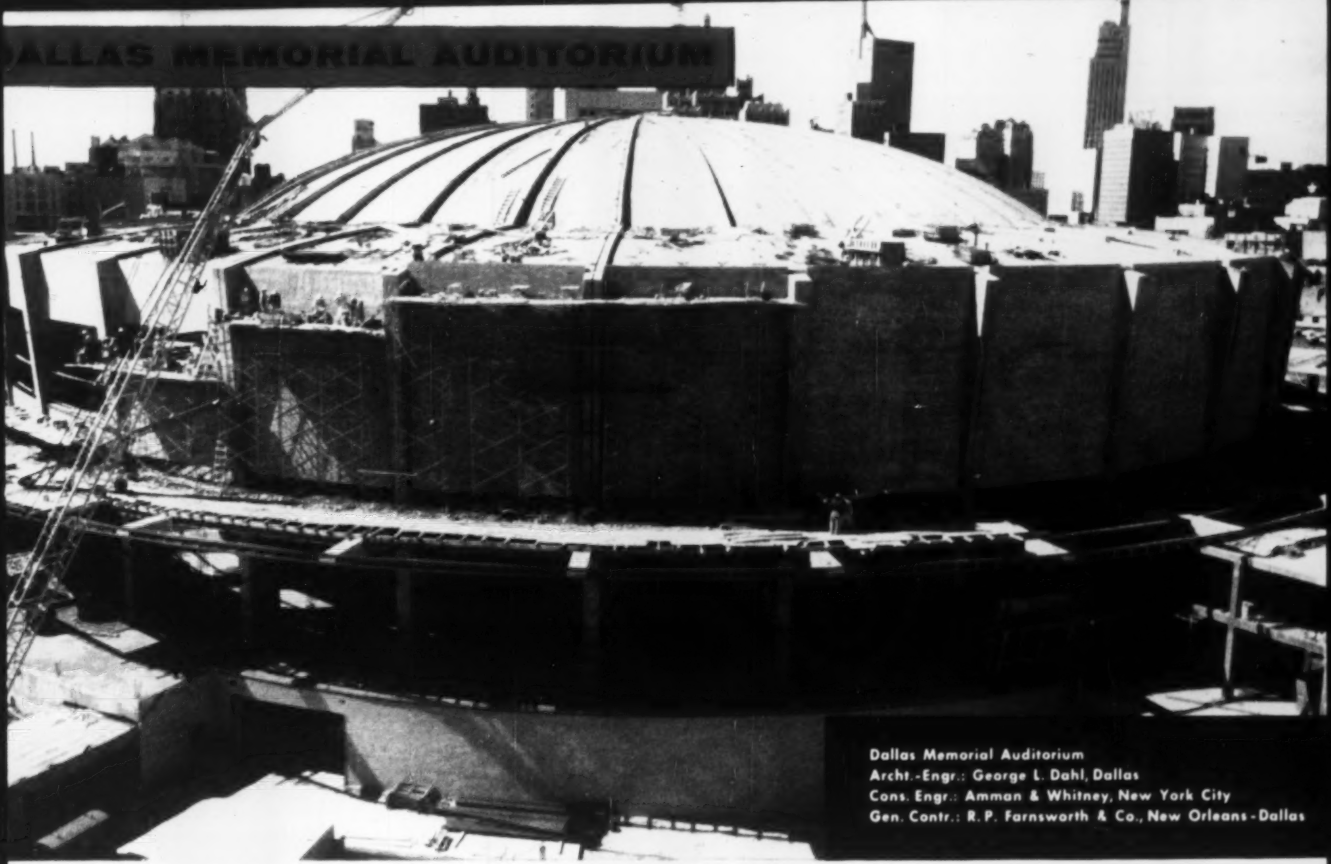
TV on Construction

THE USE OF TELEVISION to assist a cableway operator in spotting his concrete buckets over the point of discharge, described in the article on Table Rock Dam (p. 46), is another example of the receptiveness to improvements that has always characterized engineers and contractors. It recalls the time in 1935 when the first two-way radio was installed on the San Francisco-Oakland bridge job so the project manager in the office could talk to the men out on the piers or roaming the project in boats. Only a few years later when the huge-area projects of the defense construction program came along, two-way radio communication played a significant role in their success. Today, no big job and few small ones would be without it. Radio is a construction tool.

One would be conservative indeed if he did not see a somewhat similar expansion in store for television on construction. Already, in addition to Table Rock, television is being used on the St. Lawrence project to give an office-view of distant operations, and to permit looking at blasting work from a safe distance. At The Dalles Dam television permitted inspection of foundation conditions under water. On other jobs it has found use in truck dispatching from concrete mixing plant and from loading points in excavation operations. And it is said to have been used for inspecting for flaws in welds—by means of a gadget that increases the brightness of the picture several thousand times.

What has happened to this kind of television in industry generally is another reason for believing that its use will also increase in construction. A recent study showed that 600 new installations were made in 1955, and that 3,500 more were expected this year in everything from verifying signatures in banks to spotting forest fires.

The wide variety of practical uses suggests that the practical engineer and construction man will soon find others more closely attuned to his own needs. Many of the industrial installations are made by connecting the camera with the viewing monitors by means of a coaxial cable (hence the name closed-circuit television), but micro-wave television without cables can be just as effective and perhaps more useful on construction. In any event, more TV for construction is on the way. The equipment is available. The cost is coming down. Utilization waits principally on the construction man's ingenuity, and that has never been lacking.



Dallas Memorial Auditorium
Archt.-Engr.: George L. Dahl, Dallas
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★ *available everywhere*...over 1000 ready-mix and job-site plants now producing concrete with Pozzolith.

Concrete with lowest possible unit water content and good workability was specified in the construction of this $8,000,000 Dallas Memorial Auditorium.

A prime requirement was control of rate of hardening under summer and winter job conditions to provide uniform workability and uniformly high 48-hour strength for the lightweight concrete of the dome.

These requirements were met with Pozzolith. Pozzolith with its adaptations is key to the control of:

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3. *rate of hardening*...gives desired handling and finishing time under widely varying job conditions.

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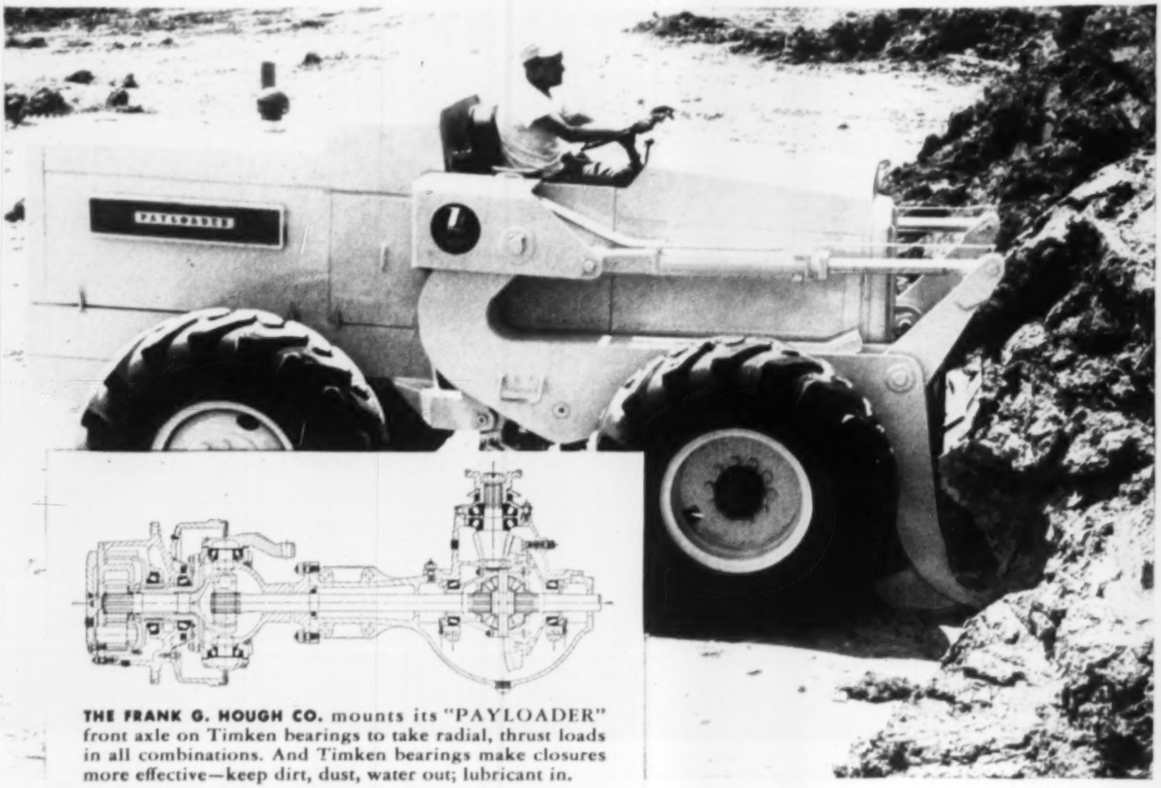

THE FRANK G. HOUGH CO. mounts its "PAYLOADER" front axle on Timken bearings to take radial, thrust loads in all combinations. And Timken bearings make closures more effective—keep dirt, dust, water out; lubricant in.

TIMKEN® bearings help give 21,000 lbs. of push—up to 50% more output

IN a powerful, highly maneuverable "bulk material handler" like this "PAYLOADER", manufactured by The Frank G. Hough Co., it's not pull that counts—but *push!* Timken® tapered roller bearings in transmission, front and rear drive axles, and wheels, help this dynamic unit exert up to 21,000 lbs. of sheer *shove* every time it tackles a pile of sand, gravel, cement, etc.

Axles are built by Wisconsin Axle Division of Rockwell Spring and Axle Company, with Timken bearings carrying the load in both differential and final drive. But aside from its tremendous power—the "PAYLOADER" does up to 50% more work than its predecessors. Timken bearings, because of full line contact between rollers and races, assure extra load-carrying capacity—and take heavy shock loads, because these same rollers and races are case-carburized to provide shock-resistant cores under hard, wear-resistant surfaces. The "PAYLOADER" works harder because Timken bearings work easier, under severe conditions!

Timken bearings take radial and thrust loads in any combination, because of their tapered construction. They're geometrically designed to give true rolling motion, practically eliminate friction. And they're precision-made to live up to their design. We even make our own steel, to assure highest quality. No other American bearing maker does this.

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